

INSIDE DOPE

Learn to live and laugh—
Thus delay your epitaph

By **GEORGE F. TAUBENECK**

Stories of the Week
Gags of the Week
Add Definitions
Communicating Is Difficult
Facts Ma'am
Verse of the Week
Out of Our Mailbag

Stories of the Week

Doctor advised a clothier to count sheep when he couldn't sleep.

Week later the menswear merchant reported back that the insomnia formula was less than successful.

"Got up to 2,000 sheep. That's 8,000 pounds of wool, or 1,500 overcoats. And who could sleep with so big an inventory?"

At a cocktail party:

"Parme for gittin sho familyer, but you're homeliest woman ever I sheen."

"You're drunk."

"Yesh, but I'll be over it insha morning."

Gags of the Week

A gold-digger is a girl who breaks dates by going out with them.

"He told me he spends a million dollars a day—and then I find out he's only a Government clerk!"

The art of medicine consists of amusing patients while nature cures the disease.—*Voltaire*.

A man may have more courage than a woman, but he doesn't get half the chance to show his backbone.—*Automotive Dealer News*.

Add Definitions

Dangerous Age: When a man isn't dangerous to anything but his reputation.

Many a married couple is like a team of horses—parted by a tongue.

Communicating Is Difficult

Theoretically we speak the same language as our British cousins; but in the matter of technical terms often we flounder and flunk.

Pacific Oil-Motive Magazine has published a long list of comparative terms in the automotive field. The thing we call a *choke* is to the British a *strangle*; their *drophead* is our *convertible*; our *sedan*, their *saloon*; we call it a *hood*, but to the British it's a *bonnet*.

There's one manifestation of British swank that we are surprised our snob-set has failed to pick up: American hucksters still drive *station wagons*; the British counterpart has his *estate car*.

Facts Ma'am

Nine of 11 Russian Cabinet ministers who held office since World War II have been shot. Five out of seven Presidents of the last Communist Executive Committee also.

Forty-three of the 53 secretaries of the Communist Party Central Organization have been executed. Fifteen of 27 top Communists who were Big Shots 10 years ago are dead. Seventy out of 80 members of the Soviet War Council have been executed. All members of the Lenin's first Politburo, excepting only Stalin, were executed.—*London Times*.

Verse of the Week

To paraphrase Kipling:
"If you can keep your head
(Concluded on Page 8, Col. 3)

ISSUED EVERY MONDAY AT 3:30 P.M. DETROIT, MICHIGAN ESTABLISHED 1934



AIR CONDITIONING & REFRIGERATION News

THE NEWSPAPER OF THE INDUSTRY

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Philco Introduces '55 Appliance Models In 4 Lines

ATLANTIC CITY, N. J.—Twelve new refrigerator models, six chest-type home freezers and four upright models, 10 newly-styled electric ranges, eight new room air conditioners, and its first built-in electric range units have been announced by Philco Corp. for 1955.

Unveiling its new room air conditioner line, the company introduced an "All-in-One Windowlette," a model claimed to be universally adaptable to all type window and through-the-wall installations and one that fits flush to the glass line.

At the same time, the company announced a room air conditioner control, the "Comfortimer," that automatically cools a room at a pre-selected time and has a "Skip-Day" feature.

The new models will also feature an automatic temperature control that is said to hold the

(Concluded on Back Page, Col. 1)

Du Pont To Discontinue 'Freon' Drop Shipments

WILMINGTON, Del.—Drop shipments of "Freon" fluorinated hydrocarbon refrigerants in any quantity for use in replacement or service work will be discontinued Feb. 1, the du Pont company's "Kinetic" Chemicals Div. has announced.

The change means that stocks of du Pont refrigerants will be maintained by recognized wholesalers, with no direct shipments from du Pont warehouses to pur-

(Concluded on Back Page, Col. 5)

Typhoon Completes Move to Larger Plant, Offers 30-Hp. Package, New Home Units

BROOKLYN—With the advent of the new year The Typhoon Air Conditioning Co., Inc. is in full production in its new and larger factory building in Brooklyn, where the firm has been located since 1946, producing a full line of packaged air conditioners for commercial and residential use, to be topped by a new 30-ton packaged commercial model.

The new 30-ton unit together with other 1955 commercial and residential models will be introduced at the International Heating & Ventilating Exposition later this month in Philadelphia. Typhoon's standard commercial line this year has been redesigned in two-tone gray to harmonize with any interior, while its residential line will include two new models, in 2 and 5-ton capacities, in the "Convert-to-Cool" "add-on" series, and a completely redesigned air-cooled condenser for the S-W year-round residential heating and cooling units.

Typhoon started its move to new production facilities on Carroll St. in Brooklyn last fall, and is now in full production on an assembly line basis on its '55 models in the new factory.

Although the company has been in business since 1909, and has been producing packaged units since 1935, the story of its expansion and growth as a national

What Happened In Residential Air Conditioning In Minneapolis In '54

By C. Dale Mericle

MINNEAPOLIS—Much progress in residential air conditioning appears to have been made here in the past year.

Although no individual contractor is particularly impressed with his own efforts, the combined total of 189 residential installations this year in the greater Minneapolis area (not including St. Paul) is a highly respectable number.

This figure was determined by AIR CONDITIONING & REFRIGERATION NEWS in a survey of individual contractors and distributors.

Previously the NEWS had made surveys in the active markets of Wichita, Kan., Fort Worth, Texas, and Memphis, Tenn. Results were

published in the issues of Oct. 18, Nov. 8, and Nov. 29, respectively.

It is on the basis of these earlier surveys, made in cities where the summers are long and the temperatures high, that the Minneapolis installations are considered "highly respectable."

Justifiably or not, Minneapolis is better known for its below-zero winter temperatures than its summer "scorchers."

The 189 jobs installed in 1954 (during the middle of November) were put in by 18 different contractors.

And there's every indication that

(Concluded on Page 6, Col. 1)

Carrier Shows Room Air Conditioner Line, Drops Prices \$40-\$60

SYRACUSE, N. Y.—Room air conditioners featuring its well-known "hideaway" installation and "combining long life expectancy with extremely-quiet, high-capacity operation," and a choice of colors are announced by Carrier Corp. for 1955.

At the same time, suggested retail prices will be reduced by \$40 to \$60 from last year's prices, William C. Egan, Carrier's room air conditioner sales manager, stated.

Three colors will be offered for 1955—"Glacier Grey," "Colonial White," and "Suntan"—all of them

(Concluded on Page 4, Col. 4)

Court Hits UA Local Try To Get 'Rigger' Work

WASHINGTON, D. C.—A trial examiner of the National Labor Relations Board has recommended that a plumbers' and steamfitters' union stop discouraging union members from working for Carrier Corp., Turner Transfer, Inc., or any of their subcontractors for the purpose of "requiring discriminatory employment" of union members to perform the unloading, rigging, and erection of heavy refrigeration machinery.

The union is Plumbers & Steamfitters Local 234, United Association of Journeymen & Apprentices of the Plumbing and Pipe Fitting

10-15% Jump In '55 Sales Is Mart Forecast

1,200,000 Room Units To Be Built, Is Prediction; Most Mfrs. Optimistic

CHICAGO—1955 should be a good year for refrigerator, freezer, and room air conditioner sales, if the optimistic pronouncements of manufacturers at the Winter Furniture Mart here are borne out.

Exhibits of new 1955 merchandise drew spotty attention during the early days of the market, with some manufacturers enjoying large crowds while others had plenty of time to talk to individual customers. However, representatives in booths where traffic was light commented that the quality of visitor was high, meaning when they came in, they talked business.

Colored appliances were very much in evidence in most booths, while stainless steel kitchen appliances were shown in several. Built-in ranges were also spotlighted. Room air conditioners received good play while several manufacturers showed small residential coolers.

Several large manufacturers—

(Concluded on Page 4, Col. 1)

NAHB Show Opens Jan. 16 In Chicago

CHICAGO—A number of exhibits of year-round residential air conditioning systems will be among the many exhibits at the National Association of Home Builders convention-exposition, which will run from Jan. 16 through Jan. 20 at the Conrad Hilton and Sherman hotels here.

However, on the basis of information received thus far, air conditioning will not have the prominent part in the convention program that it did at the previous two annual NAHB conventions.

The Chicago hotel situation will be in the usual "tight" condition that it always is during any convention the size of the NAHB affair, and those planning to go should assure themselves of a place to stay before departing for Chicago.

Small Operator Gets Big Chance In Carrier 'Sweepstakes'

SYRACUSE, N. Y.—The third annual running of Carrier Corp.'s "Icemaker Sweepstakes" will offer a 35-day trip around the world for two to the grand prize winner, plus four one-week vacation trips in addition to many other awards, reports Michael J. Kane, icemaker sales manager.

As a special incentive to retail salesmen in small towns, the final race will be handicapped according to each area's Buying Power Index (B.P.I.). For a winner with children, a 35-day baby sitter recommended by the local Chamber of Commerce will be provided free of charge.

The sweepstakes begins Jan. 24, and the final race—for which the round-the-world trip by Trans World Airlines is awarded—opens March 27 and finishes April 11.

"Any dealer or dealer salesman

(Concluded on Page 43, Col. 4)

DON'T MISS . . .

Residential Air Conditioning Survey

Frigid Minneapolis Installs 189 Units;
Two Thirds of Them Go In New Buildings 6

Air Conditioner Display Goes to Customer

Trailer Mounted Unit Allows Distributor To Exhibit
For Dealer or Dealer To Demonstrate for Customer 11

Contractor Needs Good Accounting System

Profit Leaks Can Be Plugged and General Efficiency
Increased by Use of Proper Record Procedures 24

How To Lengthen Compressor Life (2)

Discussion of Factors Involved In Prolonging
Life of Compressors by Cramer of Carrier 38

Should Contractor Enter Water Treatment Field?

Firm Finds 24% of Its Service Calls Related
To Problems Involving Water Contamination 40

. . . In This Issue

READING

THE NAME TO
REMEMBER FOR

QUALITY COPPER TUBING

FOR REFRIGERATION
& AIR CONDITIONING
EQUIPMENT



READING
TUBE CORPORATION

EMPIRE STATE BUILDING
NEW YORK 1, N. Y.
WORKS: READING, PA.

Sunbeam Cuts Prices On Air Conditioners

ELYRIA, Ohio—Sunbeam Air Conditioner Div. of American Radiator & Standard Sanitary Corp. has announced sharply reduced prices effective Jan. 3 on Sunbeam summer and winter air conditioning units.

Reductions in summer cooling equipment range up to 21% per unit and prices on automatically fired winter air conditioners reflect decreases up to 11%.

In making this announcement, T. W. McNeill, president of the division, stated: "Business forecasts for 1955 indicate a healthy but competitive situation.

"Increased production facilities at our plant, plus new design units added to both our heating and cooling lines, make it possible to reduce costs and thereby pass these savings on to the trade and consumer."

McNeill also stated that these prices levels are reflected in a new consumer price list being issued for the first time by the division.

Products in the Sunbeam line include residential and commercial summer air conditioners in 2, 3, and 5-hp. capacities. A new line of residential conditioners embodying air-cooled condensing units will be made available early in 1955.

Heating products of the division are designed to burn gas, oil, and solid fuels for installation in new and existing homes.

Air Filter Institute Adopts New Insignia

LOUISVILLE, Ky.—A new insignia has been adopted by members of the Air Filter Institute for use by members in their individual advertising and direct mail programs, and on company letterheads, and the like, it was announced by W. B. Watterson of Air-Maze Corp., institute president.

Members of the institute include Air Devices, Inc., and Drico Industrial Corp., New York City; Air Filter Corp., Milwaukee, and Research Products Corp., Madison, Wis.; Air-Maze Corp., Cleveland; American Air Filter Co., Inc., and Continental Air Filter, Inc., Louisville, Ky.; Dollinger Corp., Rochester, N. Y.; Owens-Corning Fiberglass Corp., Toledo; Trion, Inc., McKees Rocks, Pa.; and Wilson & Co., Inc., Chicago.

To Complete Cooling of Greenville, S. C. Hotel

GREENVILLE, S. C.—Completion of air conditioning of the Poinsett hotel here was approved at a special meeting of the hotel corporation's board of directors.

J. Mason Alexander, president of the board and managing director of the hotel, said air conditioning of 180 bedrooms will cost between \$60,000 and \$70,000. Seventy bedrooms and all public space are already air conditioned.

New York State Sets Up Milk Dispenser Standards

ALBANY, N. Y.—This state's first definitive regulation covering milk dispensers recently became effective.

Only dispensers approved by the new rules can be installed. Now demanded, to meet present specifications, are numerous sanitary features, such as:

Constant refrigeration of all milk, including that in the dispensing tube, at 50° F. or lower; single service dispensing tubes made of predetermined length; positive elimination of condensate drainage into cup or glass.

Also, easy disassembly of dispensing mechanism without using tools; interior cabinet angles rounded to a radius of not less than one-quarter inch; breaker strips or gaskets must be sealed against moisture or removable.

Utility In St. Louis Expands To Meet Air Conditioning Needs

ST. LOUIS—Due to increasing use of air conditioning equipment in this area, Union Electric Co. is expanding its distribution system at a cost of \$4,500,000.

The company announced that transformer capacity will be stepped up at 6,000 locations, mostly in the St. Louis area; the equivalent of five additional distribution substations will be installed; and 75 miles of primary lines will be rebuilt to handle heavier loads.

Most of the work is scheduled for completion by early summer.

Rapid development of air conditioning last summer caused some excessive voltage drops, Union Electric said.

Detroit Faces Tighter Curbs on Use of Water

DETROIT—Despite expansion of water pumping facilities, the city may have to impose tighter curbs on air conditioning in the next several years, according to Laurence G. Lenhardt, general superintendent of the Department of Water Supply.

Lenhardt so cautioned in announcing that summer restrictions on air conditioning and lawn sprinkling must remain in effect three or four more years.

He said this would be necessary because of the increasing population of Detroit and the 40 suburbs which depend on it for water.

"Few people realize," Lenhardt said, "that almost as much water is required for air conditioning as for all other uses. There was flagrant violation last summer of the restriction which limited air conditioning to a 10° drop in temperature on days when the thermometer reached 90° or more."

Completion of the Northeast Pumping Station is scheduled for the summer of 1956.

Fedders Free Flooring Plan Lets Dealers Stock Up Early

BUFFALO—Fedders-Quigan Corp., manufacturer of room air conditioners, is cooperating with its distributors in offering Fedders dealers throughout the United States a 90-day free flooring plan for all units ordered and delivered during January and February.

Donald C. Jackson, manager, Sales Finance Div., stated that the floor planning services of all banks and finance companies would be welcomed in this program.

Jackson pointed out that the plan will be attractive to financial institutions because the advance payment of interest for 90 days, as a non-refundable flat charge, gives them the advantage of any liquidation of merchandise during the free floor planning period, thereby increasing their yield.

"The plan is attractive to dealers for it will enable them to display Fedders units early and therefore make proportionately more sales."

WATCH THE G-E PACKAGED AIR CONDITIONER SALES SCOREBOARD!

G-E Dealers Score Every Time

with **5** Finance Plans

Most thorough financing coverage keeps capital free... PROFITS HIGH!

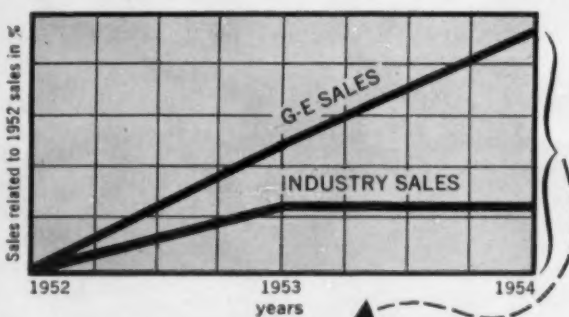
General Electric distributors offer dealers not one—but five big finance plans! Two that make it easy for any prospect to own a G-E Packaged Air Conditioner... three that help dealers carry adequate stock and free up valuable working capital. Just look over these easy terms—they mean easy sales! Investigate these five G-E Finance Plans now—more reasons why G-E Dealers have greater profit opportunities.

- 1 Easy Payment Plan**—if customer is low on cash, he puts 10% down, takes up to 36 months to pay!
- 2 Skip Payment Plan**—purchaser puts only 10% down as early as first week in October... makes first low monthly payment following May 1st! Up to 36 months to pay! Ideal plan for getting more fall and winter sales!
- 3 Dealer Inventory Financing**—carry G-E units on your floor or in warehouse of your choice until July 1st. You invest only 10% of purchase cost!
- 4 Warehousing Plan**—a big cost saver, and amazingly simple! Get details from your G-E Distributor.
- 5 Work-In-Process Finance Plan**—G-E. pays your equipment cost when your customer signs the order and the balance of selling price when installation is completed. Your working capital grows... your credit remains good—at amazingly low charges!

SEE the outstanding line of
G-E Packaged Air Conditioners at the 12th
INTERNATIONAL HEATING & VENTILATING EXPOSITION
Booth C-113 • Convention Hall, Philadelphia, Pa. • Jan. 24-28

GET ON THE WINNING TEAM!

Compare G-E sales growth with that of the entire industry... and get the facts now on how teamwork between G-E., its distributors, and its dealers makes this growth possible!



G-E Sales Growing Faster Than Industry! ... and here are more reasons why:

G-E Advertising: Year-round campaigns in leading national magazines! Strong local advertising! Hard-hitting direct mail! Special promotions of every sort!

G-E Saleability: Dozens of exclusive engineering features plus an unmatched five-year warranty protecting entire refrigeration cycle!

G-E Multiple Sales: G-E. dealers get large installations! All installations are handled by franchised distribution.

For full information call your nearest G-E Distributor or write: C. J. Rigby, General Electric Co., Commercial and Industrial Air Conditioning Dept., 5 Lawrence St., Bloomfield, N. J.

Progress Is Our Most Important Product

GENERAL ELECTRIC

Announcing... New Paragon

TPT
Time Pressure Temperature
de-frost-it with remote control



ONLY \$26.00 list, 120V
\$27.50 list, 240V

100% Fail Safe

HERE'S big news! TPT de-frost-it actually "thinks" for itself in assuring positive defrost cycles. Completely flexible; 1 to 8 defrost cycles per day. Can be installed to terminate defrost cycle at any pressure or any temperature. Once set, defrost is completely automatic. Length of

on hot gas or reverse cycle electric heat or compressor shut down defrosting.

defrost is self-adjusting for varying loads and atmospheric conditions.

Saves worry about costly food spoilage... ends call-backs for re-setting... makes any low temperature or normal refrigeration system you sell perform better! Write Dept. 1687 for more data.

TWO MODELS: TPT-303 (Hot Gas) • TPT-305 (Electric Heat)

Only Paragon TPT "de-frost-it" gives you all these great features

- AUTOMATIC DEFROSTING**—Time dial starts defrost cycle; preset rise in Pressure or Temperature terminates defrost cycle.
- 100% FAIL-SAFE PROTECTION**—Exclusive 45-minute termination dial setting:
 1. Protects against low ambient, gas shortage and low pressure.
 2. Protects against failure of Pressure/Temperature cut-in switch, or improper defrost termination setting.
- Immediate transfer from defrost to refrigeration if Pressure/Temperature are too high at start of defrost cycle.
- Pressure/Temperature terminated if clock stops at exact instant defrost cycle starts, or any time during defrost cycle.
- REMOTE CONTROL**—install the TPT in any convenient location and connect the Pressure/Temperature cut-in switch with a single pair of wires.
- HEAVY-DUTY Techron Motor**—long-life, industrial type.
- AUTOMATICALLY REDUCES COMPRESSOR DOWN TIME.**
 - May be top connected. Ample wiring gutter on side and bottom.
 - Defrost cycle may be manually started at any time with automatic termination.
 - Auxiliary contact for evaporator fan.

PARAGON ELECTRIC COMPANY
TWO RIVERS, WISCONSIN



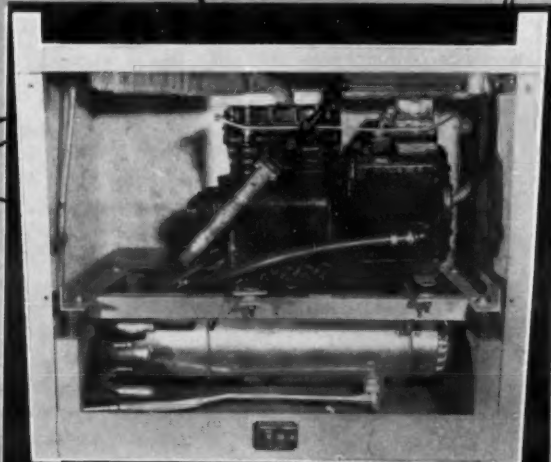
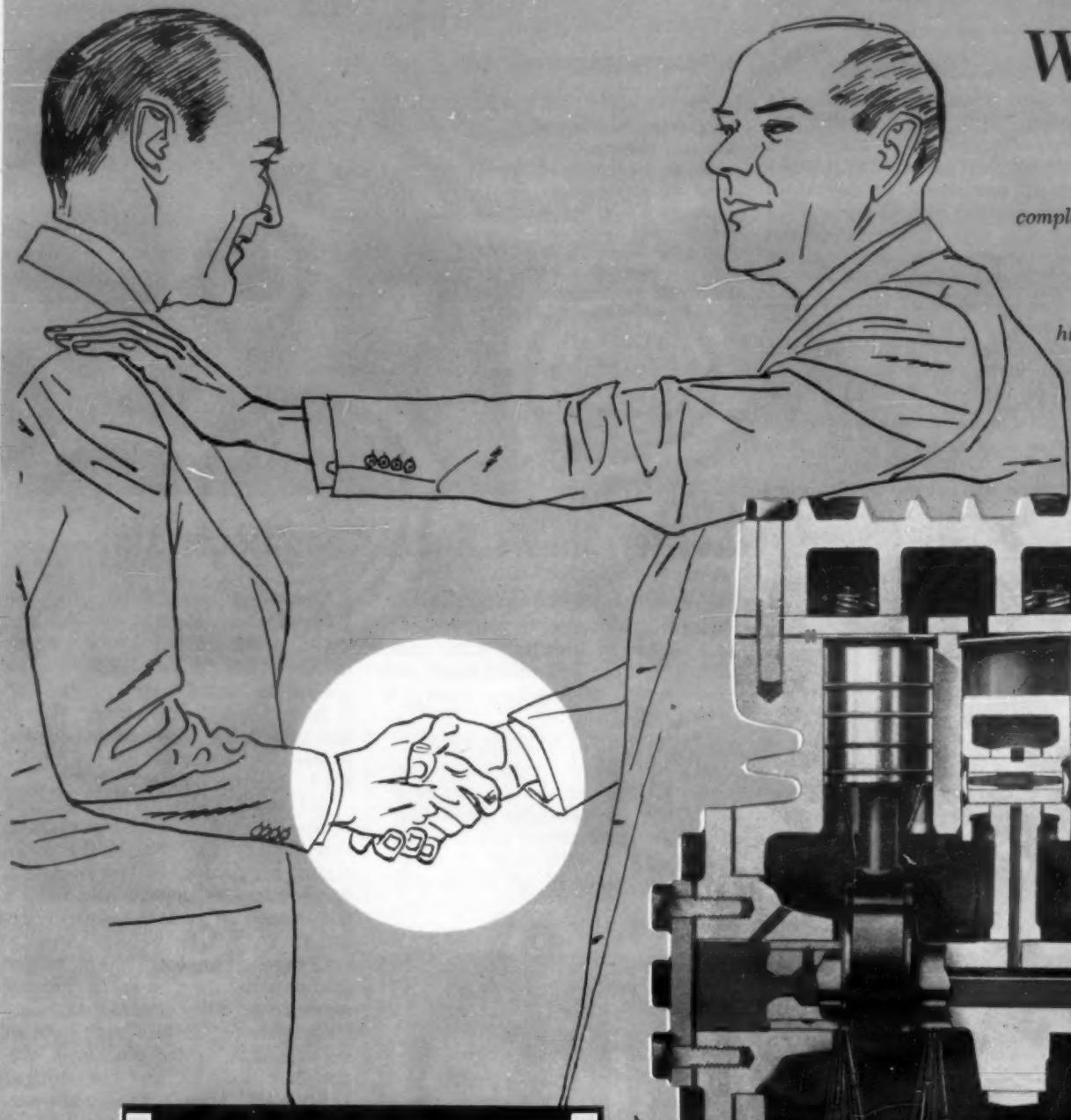
Packaged AIR CONDITIONERS

What's behind a tradition?

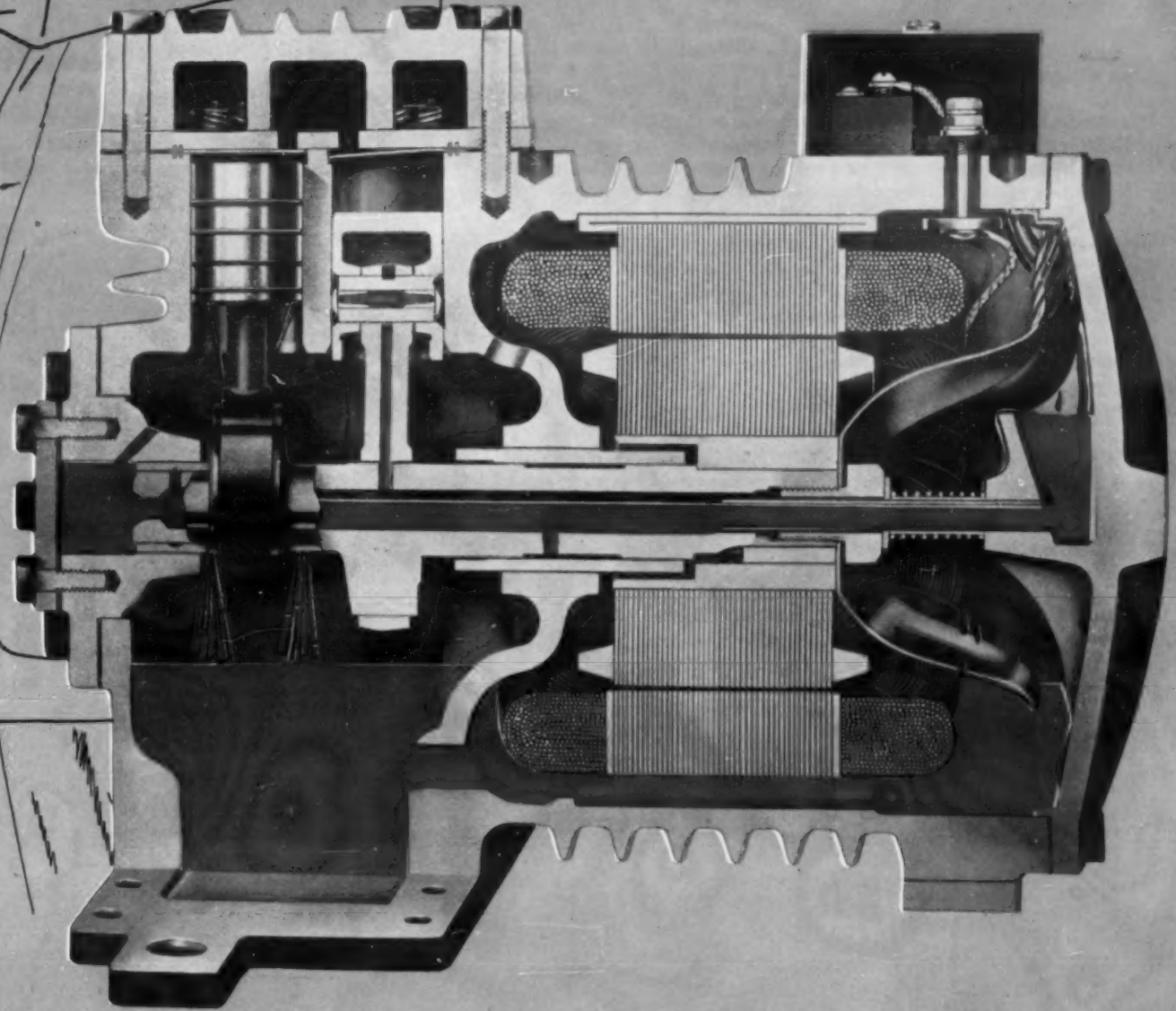
Next time you shake hands with a friend or acquaintance you will be maintaining a tradition that dates back into the antiquity of human affairs.

In some parts of the world, shaking hands served as a legal act signifying the completion of a business deal or the consummation of a friendship. In India, the hand grasp was an important rite in the ancient Hindu marriage ceremony.

During the middle ages, when bands of robbers roamed the countryside and organized civil protection was unknown, travelers meeting along the highways frequently bared their weapon hands and held them out as a gesture of peaceful intentions. The American Indian's up-raised palm and exclamation, "How!" seems to stem from similar roots. A little of all of these customs come together to form the modern greeting, "How do you do?"



TYPICAL COPELAMETIC
INSTALLATION IN A
PACKAGE UNIT



meet the easily-merchandised **COPELAMETIC**

THE *Accessible* HERMETIC

Builders of air conditioning and refrigeration equipment find it lots easier to sell their product when it's equipped with COPELAMETIC, the Accessible Hermetic. The positive performance of this Copeland motor-compressor is a tradition with refrigeration people everywhere.

The millions of units in use are absolute testimony to rugged dependability and long-range economy. Ask anyone of the over 200 manufacturers who use COPELAMETIC as original equipment. The Accessible Hermetic has been "field-proved" in their products.

Copelametic 'round-the-clock performance is a product of precision manufacture and "years ahead" design. Every Copelametic component is carefully machined to exacting tolerances to provide years of smooth,

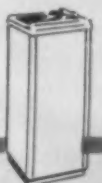
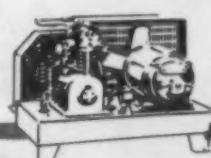
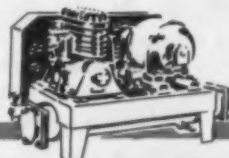
continuous operation. Belts and seals, causes of most service calls, have been eliminated. Forced-feed lubrication, a Copelametic feature, keeps oil flowing evenly to all bearing surfaces without agitation or foaming.

Accessibility is the practical engineering extra calculated to keep users Copeland friends for life. You never have to send a Copelametic back to the factory for repairs. Service it on the spot with standard tools.

Economical, quiet-running Copeland units are available to fit any application. Air-cooled, remote Copelametic units are made from 1/8 H.P. through 3 H.P. There are also 5 H.P. and 7 1/2 H.P. Copelametic motor-compressors for air-cooled condensers. There are water-cooled, remote units from 1/8 H.P. through 7 1/2 H.P. See your wholesaler or write for details.



Copeland
DEPENDABLE *Electric* REFRIGERATION



REFRIGERATION UNITS (OPEN-TYPE AND COPELAMETIC) WATER COOLERS
COPELAND REFRIGERATION CORP. SIDNEY, OHIO

Optimism Key at Marts--

(Concluded from Page 1, Col. 5) Admiral, Norge, Philco, and Servel—did not have their 1955 lines ready to exhibit at the market. They are expected to be introduced in a matter of weeks, except Admiral which does not plan to show its new lines until March.

At a press conference during the market, Parker H. Ericksen, executive vice president of Crosley and Bendix Home Appliances, divisions of Avco Mfg. Corp., predicted a market of 1,500,000 room air conditioners next year.

He estimated current inventory at 690,000 units and opined that there was a production need for 1,200,000 units this year. This would leave a balance of 400,000 units at the end of the year, which he considered to be "healthy and palatable." He declared that he thought prices would be down from 1954.

E. L. Hinchliff, sales manager for Amana Refrigeration, Inc., announced that 1954 was Amana's best year in history and fourth-quarter freezer volume doubled that of 1953.

He said the company's inventories of both freezers and room air conditioners was "practically zero." Amana plans to substantially increase freezer production and double room air conditioner production next year, he added.

R. C. Connell, vice president of sales for the Norge Div. of Borg-Warner Corp., said, "We believe major appliance sales will be up a healthy half-million units over 1954. Clothes dryers will be well on the way to the million mark for the first time and automatic washers will total nearly 200,000 units over 1954 first half."

D. A. Packard, general sales manager for Kelvinator Div., American Motors Corp., "shared the general belief that major appliance business in the first six months of 1955 will be better than in 1954 by at least 5 to 10%."

Kelvinator offered dealers visiting its booth a way to lick the inventory problem on colored ranges and refrigerators. The company has devised a counter display and an easel display containing eight colored panels and transparencies

of the two appliances. By placing the selected color panel behind the transparency, the dealer can show his customer just what the refrigerator and range would look like in color.

Hotpoint attracted considerable attention with its "Tomorrow's Kitchen—Today." Completely electric from refrigerator to clothes dryer, all equipment is assembled to form an island in the center of the kitchen area. Everything from clothes washer to disappearing toaster, coffee maker, and electric mixer is operated by pushbuttons. Built in a facade of black walnut, the appliances are finished in satin chrome while work surfaces are made of ceramic tiles in yellow.

Frigidaire demonstrated built-in range surface units that fold back against the wall when not in use. They turn off automatically when folded to leave the counter free.

Fresh'nd-Aire Co., division of Cory Corp., displayed a standard room air conditioner that had only three pushbutton controls—off, fan, cool. Gibson tested reaction to an adapter kit for room coolers so they can be installed entirely within the window line and the window closed whenever desired.

DECORATIVE AND versatile are claims for 1955 room air conditioner offered by Carrier Corp., shown here built into an exterior wall with only the grille appearing inside the room. Unit was styled by Lurelle Guild, industrial designer.



Carrier Shows Room Conditioner Line--

(Concluded from Page 1, Col. 3) "carefully adapted to the decorating theme of blending with room colors without enforcing their own tone on the surrounding decor," it was pointed out.

Suggested retail prices for the 1955 window models are as follows: 1/3 hp.—\$199; 1/2 hp.—\$289; 3/4 hp.—\$349; 1 hp.—\$399.

Console units are supplied in 1 and 1 1/2-hp. air-cooled models and in a 1-hp. water-cooled model. Prices for consoles are: 1 hp.—\$549; 1 1/2 hp.—\$699.

All units from 1/2 hp. up are equipped with factory-installed thermostats for completely automatic regulation of temperature. Window model thermostats have a wide range of weather-control settings.

Controls under the hinged louver panel may be set to provide ventilation with outside air, and circulation and filtering without cooling and dehumidification. Adjustable louvers in the hinged grille panel permit directional control of air circulation.

14-WAY INSTALLATION

Referring to the previously-introduced slim silhouette "hide-away" unit projecting no farther into the room than the line of the drapes, and incorporating decorative styling by Lurelle Guild, Carrier said:

"Contributing to its decorative quality is the fact that it can be installed in any one of 14 different ways. They include: through a framed opening in the wall or built into storage furniture such as bookshelves and cabinets.

"The Carrier can be hung at the top of a window, brought all the way inside the room, with only the back of the unit in the window opening, or suspended in a basement window. It can be installed against casement windows without cutting the mullions."

Egan said Carrier has set up delicate and precise testing equipment throughout its air conditioned production lines to insure that every unit meets the absolute standard of quality laid down in the original design.

"More than a quarter of a million dollars has been spent on this equipment alone," Egan said.

"Development testing to determine production specifications includes exposure of components and entire units to artificially created sand and dust storms, salt water sprays, and humidities of 100%.

Protection against corrosion at both seashore and city locations is one of the most important single factors in determining the life of a room air conditioner, Egan said.

"The casing and structural elements of the new Carriers are made of steel coated with a layer of zinc," it was explained. "It is then Bonderized and painted.

"Painting is conducted in three separate operations. The Carriers are first given a prime coat, secondly a finish coat, and thirdly the casing is baked for 30 minutes at 350° F., providing a durable, corrosive-resistant protective covering having a high luster.

"The condensing coil, the most susceptible part of the unit to the action of salt and chemicals in the air, is dip-coated with corrosion-resistant paint.



It's great to be a
Carrier Weathermaker* Dealer!

Because Carrier Distributors
are extra helpful!

This may be straining a point to show it's no strain on a Carrier Distributor. But when it comes to supplying Weathermakers there's nothing like the help that Carrier Dealers get from their distributors—all 108 of them. Carrier Distributors stock the entire line of Weathermakers and they can deliver quickly the special models which might require months to get from the factory. And they offer several easy ways to finance the cost.

Carrier Distributors know air conditioning!

Most of them started as dealers themselves. They know what it takes to be a successful air conditioning dealer—and they have it to give. They'll help you survey your market, train your salesmen and service people, work with you on estimates, engineering, application and service, help you with your advertising and promotional plans. And in addition to all this, you have this big plus...

You have the Carrier name to sell!

It's the name associated with air conditioning—not automobiles, not light bulbs, not kitchen appliances. Carrier people pioneered air conditioning and know it best. Your prospects know this—Carrier products show it! Take the Weathermakers!—the most complete line of self-contained units in the business. And now Carrier offers you air-cooled Weathermakers—the first heavy-duty, commercial units up to 7 1/2 hp! These Weathermakers alone are reason enough for tying up with Carrier. But there's more...

Look what you get from the Carrier Distributor!

1. Complete Course in "How to Sell the Weathermaker"—covering estimating, design, application, installation, sales, the works!
2. Industry's Most Complete Line of Self-contained Equipment—air-cooled Weathermakers from 2 to 7 1/2 hp. Water-cooled models from 2 to 20 tons! Plus a full line of matched cooling towers.
3. A Weathermaker Handbook to Sure-fire Sales—everything in one handy pocket volume: survey procedure, estimating data, mechanical specifications, sales tips.
4. Low-cost Finance Plans—five dealer and customer finance plans plus convenient plans that let you order from the distributor's stock without big investments.
5. On-the-spot Assistance in Engineering, Sales and Advertising!

*Reg. U.S. Pat. Off.

CARRIER
AIR CONDITIONING
REFRIGERATION
INDUSTRIAL HEATING
CARRIER CORPORATION, 310 S. Geddes Street, Syracuse, New York

Please put me in touch with the Carrier Distributor who can enroll me in that "How to Sell the Weathermaker" course.

I'd be interested in selling:
☐ Carrier Self-contained Weathermakers ☐ Carrier System Weathermakers
☐ Carrier Residential Weathermakers ☐ Carrier Room Air Conditioners
☐ Carrier Ice makers

Name _____
Street _____
City _____ State _____



Frigidaire Announces Prices on Its 1955 Appliance Models

DAYTON—Frigidaire Div., General Motors Corp., has announced suggested list prices on its 1955 appliance line including 13 refrigerators, 11 electric ranges, four room air conditioners, two upright food freezers, food waste disposers, built-in cooking equipment, and four dishwashers.

Automatic washer and dryer prices were announced earlier.

Suggested retail cash prices follow:

REFRIGERATORS	
AV-44	\$181.95
AV-61	181.95
SV-76	189.95
SDV-76	219.95
*SDV-91	269.95
*SDV-91P	299.95
SDV-110	299.95
CDV-84	329.95
CDV-103	389.95
*CIV-84	359.95
*CIV-84P	389.95
*CIV-115	469.95
*CIV-115P	499.95
*CIV-112	479.95
*CIV-112P	519.95
*CIV-143	549.95
*CIV-143P	589.95
*CIV-150	599.95
*CIV-150P	649.95

*These models are available in yellow or green at an additional charge of \$10 at the Suggested Cash Price for models under 10 cu. ft. and \$15 at the Suggested Cash Price for models 10 cu. ft. and larger.

FOOD FREEZERS	
UFV-125S	\$349.95
UFV-125	399.95
UFV-125P	439.95
ROOM AIR CONDITIONERS	
ARV-33	\$229.95
ARV-50	289.95
ARDV-75	339.95
ARDV-100	389.95

RANGES	
RV-3	\$161.95
RV-4	171.95
RV-30	189.95
RV-35	219.95
*RV-38	239.95
*RV-30G	249.95
RV-10	189.95
RV-20	249.95
*RV-25	299.95
*RV-25G	309.95
RV-45	389.95
RV-45G	399.95
*RV-60	429.95
*RV-70	469.95
*RV-70G	479.95

*These models are available in yellow or green at an additional cost of \$10 at the Suggested Cash Price.

BUILT-IN COOKING EQUIPMENT	
Imperial Wall Oven	
RV-90	\$182.95
Fold-Back Surface Unit	
RV-92	86.00

DISHWASHERS	
DWV-8U	\$299.95
DWV-8F	319.95
DWV-8S	449.95

FOOD WASTE DISPOSERS	
FVD-1—All purpose home and apartment installation — has built-in dishwasher inlet ...	\$99.95
FVD-2—Designed for plumbing close to underside of sink—no dishwasher inlet ...	99.95

Suncoast To Distribute Deepfreeze Appliances

NORTH CHICAGO, Ill.—Suncoast Appliance Distributors, St. Petersburg, Fla., has been franchised as distributor for Deepfreeze Appliance Div., Motor Products Corp., according to J. A. Rishel, Jr., the manufacturer's general sales manager.



GREATER PROFITS FOR ALL! \$

WITH THE **NOLIN Moisturizer** VEGETABLE CASE



AVAILABLE IN 5' - 8' - 10' SIZES

If It's Not a NOLIN, It's Not a MOISTURIZER

NOLIN MANUFACTURING COMPANY
1400 LLOYD ST. PH. LD. 57
MONTGOMERY, ALABAMA

Gibson Offers Caster Kit For Moving Refrigerators In Home or Showroom

GREENVILLE, Mich.—Frank L. Sacha, manager of Gibson sales at Gibson Refrigerator Co., has announced the availability of a new accessory kit consisting of a set of roller casters which may be used on 9, 10, and 11-cu. ft. refrigerator models.

While the casters may be permanently attached to the refrigerator, they are so designed as to make them also easily removable, it is stated.

"This accessory answers a long felt need for such a feature, as evidenced by the many requests from the field, and it is expected that the caster kit will prove itself valuable in the home and in the dealers' places of business for moving the refrigerators about with ease," the announcement said.

Schwegler Names Duffy As General Manager

BUFFALO—John J. Duffy, formerly appliance buyer for Adam, Meldrum & Anderson Co. here, has been appointed general manager of Schwegler Bros. appliance store at 393 Ellicott St., it was announced by President Albert F. Schwegler.

HOUSEHOLD REFRIGERATION

Using Assembly Line Techniques

Central Appliance Reconditioning Plant Proposed by Atlanta Bank Official

ATLANTA—Some centralized organization that would take over the job of reconditioning used appliances for dealers and, if necessary, even selling them was proposed recently by Paul M. Welch, vice president in charge of the installment lending division of the Citizens & Southern National Bank here.

Such an organization is needed, he declared, because dealers generally are not equipped to carry on such reconditioning programs on their own.

"I have a distinct feeling there is a need for possibly a centralized organization, maybe cooperatively supported by manufacturers and distributors at the outset, where assembly line reconditioning of all products could be done at a profit," Welch told a gathering of distributors and manufacturers' representatives at the bank's annual meeting.

"I have particular reference to the white goods field, such as refrigerators, washing machines,

and the like, which, when properly reconditioned, has as extended a useful life as a reconditioned automobile, truck, or tractor," he explained.

"Could not an organization be formed to perform such a function at a profit? Properly, reconditioning enhances the value of this used equipment. It makes the difference between a profit and a loss for your dealers."

"It absorbs obsolete parts inventories of distributors and manufacturers at a profit, and would make possible increased sales of new merchandise by assisting the dealers in making a net profit."

Welch declared that the bank had relaxed credit terms on white goods during the past year in a move to encourage dealers to sell up to their higher-priced models. Generally terms were extended to 10% down with 30 to 36 months to pay. In addition the bank will provide credit up to \$100 in appliance contracts for electrical wiring.

But, he confessed, the dealers

had disappointed him by not taking advantage of the Christmas season or the relaxed terms to upgrade their selling. They continued to stress leader lines.

G-E 'Mix-or-Match Color Choice' Offers Paint For Kitchen Items

SCHENECTADY, N. Y.—A two-way plan to market unrelated products simultaneously has been developed by General Electric Co., which makes both major appliances and resins for paint products.

The plan called "Mix-or-Match Color Choice" is based on G-E's 1955 line of major appliances which are available not only in the conventional white, but in turquoise green, canary yellow, petal pink, cadet blue, and wood tone brown.

These same colors will be available in the paints based on G-E "Glyptal" alkyd resins so the homeowner planning a kitchen color scheme around the colored appliances can match or harmonize walls, woodwork, and other painted surfaces.

Appliance dealers will be briefed about the availability of the paint and paint dealers, under which the plan will be marketed nationally, will be ready to tell customers how the colors can be matched or harmonized.

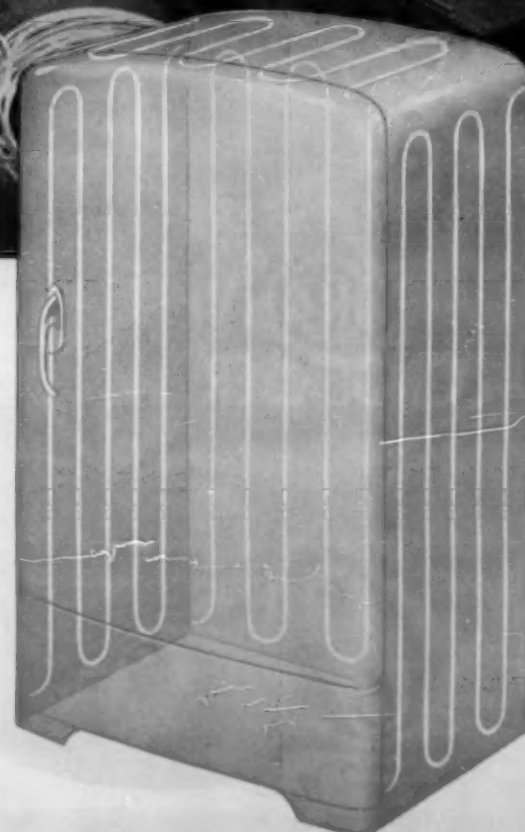


More economical • Easier to shape and bend

Bohn aluminum refrigeration tubing helps reduce costs because it is easier to form. It also works more efficiently in the finished product because aluminum is an excellent heat conductor. Bohn aluminum refrigeration tubing is available in bulk coils, specified patterns or cut to required lengths with dependable, flash-butt welded copper leads.

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BOHN ALUMINUM AND BRASS CORPORATION
1400 LAFAYETTE BUILDING DETROIT 26, MICHIGAN
Sales Offices: BOSTON • CHICAGO • CLEVELAND • DAYTON • DETROIT
INDIANAPOLIS • LOS ANGELES • MILWAUKEE • MINNEAPOLIS • NEW YORK
PHILADELPHIA • ROCHESTER • ST. LOUIS



SHELL CONDENSER APPLICATION of Bohn aluminum refrigeration tubing for either chest or upright freezers.

What Happened to Residential Air Conditioning In Minneapolis During 1954

189 Units Installed In Homes In a City Famous for Its Zero Temperatures;
Two Thirds of the Systems Went Into New Buildings

(Continued from Page 1)

there'll be a greater number of installations next year by more contractors.

Approximately two-thirds of this year's installations went into new homes. The accompanying table shows 128 jobs in new homes compared to 61 in existing homes.

The survey also showed that the great majority of units (160) were put in by 14 heating and sheet metal firms. Four firms classed as air conditioning and refrigeration contractors installed the balance of the jobs (29).

Fourteen different makes are represented in the 189 units installed in Minneapolis residences. Seven of the makes are the products of old-line air conditioning and refrigeration manufacturers, and an equal number of names represent furnace companies who much more recently got into the air conditioning "act."

166 Were Water-Cooled

Units with air-cooled condensers accounted for 23 of the 189 jobs, leaving 166 with water-cooled condensers.

In analyzing the tabulated results readers may question the fact that no installations are reported in "projects." This may be especially true of readers in the Minneapolis area who recently saw full-page advertisements in local newspapers about a 250-home project "completely air conditioned."

The whole question partly depends on how one defines an installation in a "project" put up by a speculative builder.

In making the survey and tabulating the results, the NEWS is proceeding on the assumption that installation in "projects" would only be listed as such when the speculative builder buys and installs air conditioning before he has a buyer for the house or

houses in question.

If the speculative builder merely makes provision for air conditioning and offers it (or tries to sell it) to the prospective home buyer, such an installation when made is being classified as a "new" home job rather than a "project."

Thus the NEWS puts this type of speculative builder in the class of being perhaps the best salesman and supporter the air conditioning industry ever had, but does not classify him as a customer.

Referring to the Minneapolis situation specifically, the 250-home project is not being completely air conditioned, on the word of the realty company official who is directly in charge of the entire program.

The Builder Is Promoter

The 250 homes, he explained, are being erected on two different sites. Air conditioning will be available for all the homes, and the realty company is trying to sell air conditioning in every instance, he said.

"No, we have not ordered 250 air conditioners for this project," he flatly stated.

To date, 32 homes have been sold. Not all have been completed yet. And of these 32 homes, 14 have been, or will be, air conditioned, this realty official revealed.

These 14 installations are included in the "new" home listing in the accompanying table rather than in "projects" because it was the individual home buyer who made the final decision about installing air conditioning.

On the question of the heating and sheet metal contractors being predominant in Minneapolis (unlike Wichita, Fort Worth, and Memphis where they played a minor role this year) some Minneapolis refrigeration contractors said they were skeptical of the results obtained in the NEWS survey.

Were Jobs Subcontracted?

The skeptical contractors think that the actual installing of many of these residential air conditioning jobs was in the hands of refrigeration firms, who put the units in on a subcontract basis.

This may or may not be true. No attempt was made by the NEWS to determine the type of workman or firm who actually set the unit in place, connected it to ductwork, and started it up.

Rather, the NEWS is attempting

to find out who is selling the stuff.

In the long run, the question of the actual installer can't be ignored, but it would seem obvious that unless someone sells a unit, no one will be installing it.

That heating and sheet metal contractors presently dominate the residential field in Minneapolis should not be surprising. Residential heating is definitely a must in this area where sub-zero winter temperatures are taken as a matter of course.

In many cities of the south, however, where residential air conditioning is being sold in a big way, central heating and the heating contractor are comparatively new.

More Activity Due

And some Minneapolis refrigeration contractors readily admit they have not been actively interested in the residential field to date. Most of these, however, are planning to get into it in a big way next year on their own.

In this survey, the NEWS also questioned contractors about their service problems in connection with residential air conditioning installations.

The contractors, who offer one-

The story published on these pages is one of a series on just what is happening to residential air conditioning in a number of areas in the country.

There has been a great deal written about the future of the market for residential air conditioning systems, but remarkably little about what has actually happened in the sale and installation of such equipment.

In order to present a *factual* picture of the number and kind of systems that have been sold, and the type of businesses that have done the selling and installing, the NEWS sent Associate Editor C. Dale Mericle into some of the areas that have been good markets—active areas such as Wichita, Kan.; Fort Worth, Texas; and Memphis, Tenn. These areas have long summers and mild winters, a natural for residential air conditioning. This story is what happened to air conditioning in a northern area where winters are long and bitterly cold and summers are never exceptionally hot.

Instructions were to report as completely as possible on just what did happen in residential air conditioning in these areas. Mericle's reports on the southern areas were published in the NEWS Oct. 18, Nov. 8, and Nov. 29.

year free service plus the factory warranty, generally recalled no unusual problems in this connection.

One contractor mentioned moisture being in ductwork. He wasn't sure whether this moisture was condensate off the cooling coil

blown into the ductwork or water that had condensed out of the surrounding air on the cold ductwork.

"We don't insulate the ducts too much," he commented.

Another contractor said he had to rewire an existing home to

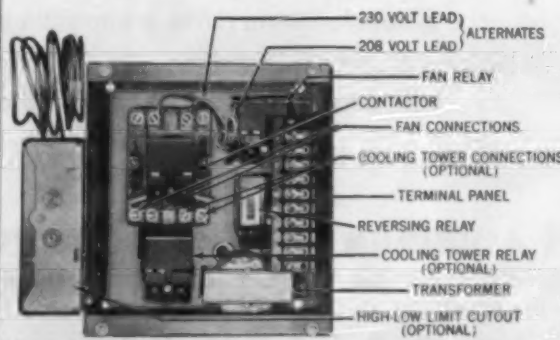
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Now—designed for you after a nationwide

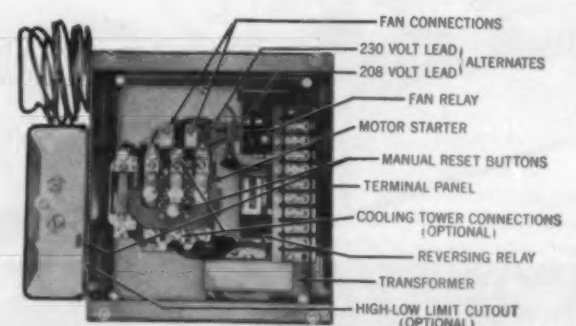
New All-Honeywell-guaranteed

All these features in
the new Honeywell W212A!

- 1 Complete circuitry allows you to "customize," using the features your particular installation requires.
- 2 Remote control. Panel contains fan relay, permitting constant or intermittent fan operation from thermostat.
- 3 Available with or without Hi-Lo pressure control.
- 4 Compact—only 8 1/4" high, 7 1/4" or 9" wide (if pressure control is included), 4" deep.
- 5 Accessible. All components on one sub panel, easily removed for servicing.
- 6 Simplified wiring permits factory wiring of complete heating-cooling circuit, except for power supply and thermostat connections.
- 7 Guaranteed for one year as a complete unit by Honeywell.



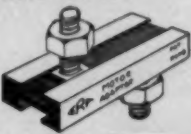
W212A Light Duty Panel



W212A Heavy Duty Panel

MOTOR BASE ADAPTERS Sell Many Other Items

Keep them in stock. Servicemen will pick up adapters and motors, carry them in their cars, and complete service on the job in one call. Eliminates delay of having motors away for rebuilding. Adapters are easy to install, fit any base. No rotor shaft too long or too short. They also bring you more sales in motors, belts, pulleys, controls, etc.



ENGINEERING RESEARCH ASSOCIATES, INC.
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KRAMER EVAPORATIVE CONDENSER

Unmatched in the industry for smaller tonnages.
For years its "trouble free" operation
has established it as the evaporative
condenser without equal. 2 to
10 ton models.



WRITE FOR
CATALOG
R-230

KRAMER TRENTON CO. • Trenton 5, N.J.

(Concluded from preceding page)
handle a 5-ton air conditioner.

Only one firm (a heating contractor) had run into any serious service problem on a residential system, but apparently factors other than mechanical are involved.

Job in question is an air-cooled unit consisting of a packaged compressor-condenser installed outside the house and connected to the blower-filter-coil unit in the house.

Problem was not one of performance but what the next-door neighbor charged as "excessive noise."

The compressor-condenser package was installed between two houses, which are about 10 to 15 ft. apart, the contractor explained.

Bitter complaints by the neighbor led the contractor and manufacturer to move the unit from between the houses into the back yard and to put in a new compressor.

"We took a shellacking on that," the contractor said, "and still the neighbor continued to complain."

Big question in the contractor's mind, however, is whether the basic problem is alleged noise of the unit or racial prejudice on the part of the neighbor against the owner, who is a successful doctor.

The contractor feels that the noise of the unit is not at all excessive but is being used as an excuse by the neighbor.

The problem has not been settled as yet.

These Are the Contractors That Made The 189 Installations

A breakdown of the 18 individual Minneapolis contractors who installed residential systems this year shows the following:

Contractor A (45 units) is a heating and sheet metal contractor. He installed three different makes; two of these representing old-line air conditioning and refrigeration companies, the third a furnace manufacturer. He has his own sheet metal shop.

Contractor B (40 units) is a heating and sheet metal firm holding a franchise for an old-line air conditioning and refrigeration manufacturer. Makes installed this year included units of this manufacturer plus units of two furnace manufacturers. Has own sheet metal shop.

Contractor C (25 units) is primarily a heating firm selling and installing a single line of equipment produced by a furnace manufacturer. Operates own sheet metal shop.

Contractor D (15 units) is a heating and sheet metal firm. Installed units made by two old-line air conditioning and refrigeration manufacturers. Does own sheet metal.

Contractor E (15 units) is an air conditioning and refrigeration contractor representing a pioneer

manufacturer of air conditioning and refrigeration equipment. Doesn't do sheet metal work nor has he plans to do so.

Contractor F (10 units) is an air conditioning and refrigeration contractor. Units installed were produced by an air conditioning manufacturer. This firm does not have a sheet metal shop nor does it plan to add one.

Contractor G (eight units) is a heating and air conditioning contractor representing an old-line air conditioning manufacturer. Does own sheet metal.

Contractor H (six units) is a heating firm. Installed two different makes; one of an old-line air conditioning manufacturer, the other of a furnace company. Has own sheet metal shop.

Contractor I (six units) is a heating and air conditioning firm. Units were produced by an air conditioning manufacturer. Does own sheet metal.

Contractor J (five units) is a heating contractor whose installations employed units of a furnace manufacturer. Does own sheet metal.

Contractor K (three units) is an air conditioning and heating firm specializing in industrial in-

Residential Air Conditioning

stallations. Residential systems (put in chiefly to accommodate customers of firm's larger installations) employed units of old-line air conditioning manufacturer. Has sheet metal shop.

Contractor L (two units) is a heating and sheet metal shop. One unit was of an old-line air conditioning manufacturer, the other was that of a furnace company. Does own sheet metal.

Contractor M (two units) is a heating firm. Employed units of a furnace manufacturer. Does own sheet metal.

Contractor N (two units) is a heating contractor who used units of old-line air conditioning manufacturer. Does own sheet metal.

Contractor O (two units) describes his firm as a heating and refrigeration company. Two jobs employed units of old-line air conditioning manufacturer. Does own sheet metal.

Contractor P (one unit) is an air conditioning and refrigeration firm representing an air conditioning manufacturer. Does not have sheet metal shop.

Contractor Q (one unit) is a heating and sheet metal firm who installed unit of furnace manufacturer. Does own sheet metal.

Contractor R (one unit) is a heating and sheet metal firm who installed unit of old-line air conditioning and refrigeration manufacturer. Does own sheet metal.

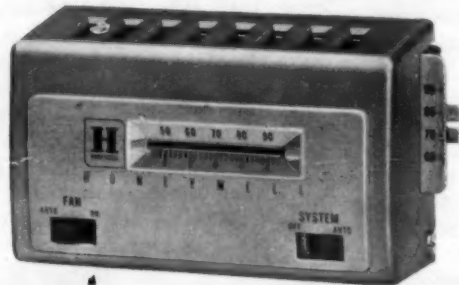
RESIDENTIAL INSTALLATIONS IN MINNEAPOLIS

Contractor	Total Units This Year	New Homes	Existing Homes	"Projects"	Air Cooled	Water Cooled
A	45	39	6	....	10	35
B	40	38	2	....	....	40
C	25	25	....	....	6	19
D	15	5	10	....	1	14
E	15	....	15	....	....	15
F	10	5	5	....	5	5
G	8	4	4	....	....	8
H	6	....	6	....	1	5
I	6	2	4	....	....	6
J	5	5	....	....	....	5
K	3	....	3	....	....	3
L	2	2	....	....	....	2
M	2	....	2	....	....	2
N	2	1	1	....	....	2
O	2	1	1	....	....	2
P	1	....	1	....	....	1
Q	1	1	....	....	....	1
R	1	....	1	....	....	1
Total	180	128	61	....	23	166

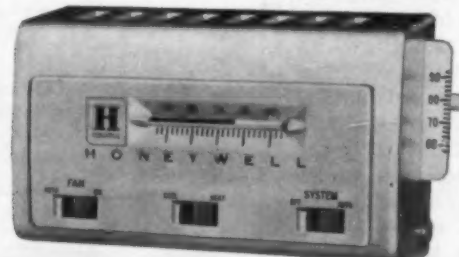
survey of dealers and users . . .

heating-cooling control panel

Use the new W212A with these Honeywell Thermostats



New T833B Fully Automatic Heating-Cooling Thermostat. Now released after a year of field testing. Has auxiliary switches for: Fan (automatic-constant), System or cooling (off-automatic). Separate setting levers control heating and cooling temperatures. Night setback on heating by addition of timer and transformer.



T830 Semi-automatic Heating-Cooling Thermostat. Has three manual switches: Heating or cooling; automatic or constant fan; automatic thermostat control or positive "off." T830 models available for heating and single-stage cooling or heating and two-stage cooling.

WE ASKED DEALERS, jobbers, manufacturers all across the nation what features they wanted most in a residential heating-cooling control panel. And here they are—in the new, extra-compact, ultra-versatile W212A Control Panel! Universal in its field—covers a range of compressor sizes from 2 hp to 5 hp single phase and 7½ hp three phase. Heavy duty or light duty model. Circuitry that lets you customize it to your requirements. And covered as a complete unit by a Honeywell one-year guarantee. Specify the W212A Control Panel for all your jobs. For full information on this new, low-cost W212A, contact your nearest Honeywell branch office today, or write direct to Minneapolis-Honeywell Regulator Company, Minneapolis 8, Minnesota.

We'll help you
with your cooling problems

MINNEAPOLIS
Honeywell

First in Controls



112 OFFICES ACROSS THE NATION

Blacker Takes Worthington Equipment Sales Post

HARRISON, N. J. — Fred J. Blacker has been appointed manager of original equipment sales, Air Conditioning & Refrigeration Div. of Worthington Corp., according to M. M. Lawler, Worthington vice president.

Blacker will be responsible for the sale of Worthington air conditioning and refrigeration equipment to original equipment manufacturers.

The construction of the corporation's new plant at Decatur, Ala. has made available facilities for the production of hermetic compressors, condensing units, cooling cycles, and brand-name packaged air conditioners for original equipment manufacturers. In addition to this equipment, Worthington will continue to supply its larger types of refrigeration equipment to manufacturers as in the past.

Blacker will assume his new position with a background of over 31 years' experience in the air conditioning and refrigeration business with Worthington.

He will make his headquarters at Harrison, N. J.



F. J. Blacker

E-Z-SEE

LIQUID INDICATOR

NEW FLO INDICATOR FLAP SHOWS ALL FLOW CHANGES

Analyze flow, function of expansion valve, by means of E-Z-SEE sensitive flap, instantly responsive to variations in flow. Positively leak-proof — hundreds of thousands in use.

Available at Wholesalers everywhere

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INCORPORATED
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Here's Harry Alter's
DEPENDABOOK
No. 161...
1954

REFRIGERATION PARTS and Supplies plus

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WHOLESALE ONLY
"Harry Alter gives you snappy service."



Airtemp Drops Prices \$30 to \$100 On '55 Room Air Conditioners

DAYTON—Reductions from \$30 to \$100 per unit were disclosed by Airtemp Div. of Chrysler Corp., as the company released its new 1955 "factory retail at factory" room air conditioner prices.

The prices range from \$259.95 for a 1/2-hp. deluxe model to \$379.95 for a 1-hp. "Custom" unit.

Airtemp's enlarged 1955 room air conditioner line includes four "Deluxe" and two Custom models. It also includes two casement window models. One of the latter is a new 3/4-hp. unit which the company is marketing for the first time. Custom models feature "reverse cycle" operation, providing heating as well as cooling.

Announcing the new prices, S. R. Prugh, Airtemp room air conditioner sales head, stated that the new prices become effective immediately. He added that the "fac-

tory retail at factory" unit price may also be considered as "suggested retail" although freight costs will cause slight price variations in some sections of the country.

"We are confident that our '55 prices, together with Airtemp's enlarged product-sales training program, increased national distribution, and more effective merchandising on the part of individual retailers, will greatly stimulate room air conditioner interest and sales," Prugh said.

Airtemp recently established a separate room air conditioner sales division, headed by Prugh, and has appointed 15 room air conditioner zone managers to provide retail dealers with special merchandising assistance on a year-round basis.

Factory retail prices are as follows:

Model	Description	1955 Price	1954 Price
1750	1/2 hp. Deluxe casement window	\$299.95	\$374.70
1775-1	3/4 hp. Deluxe casement window	344.95	Not available in '54
1650-2	1/2 hp. Deluxe	259.95	292.09
1675-2	3/4 hp. Deluxe	319.95	368.56
1675-3	1/2 hp. Custom	349.95	412.59
1675-4	3/4 hp. Deluxe	319.95	Not available in '54
1600-2	1 hp. Deluxe	349.95	439.21
1600-3	1 hp. Custom	379.95	488.32

Note: All prices are factory retail prices at factory, Dayton. They include a five-year compressor warranty and Federal excise tax, where applicable.

INSIDE DOPE

Learn to live and laugh—
Thus delay your epitaph

By GEORGE
F. TAUBENECK

(Concluded from Page 1, Col. 1)

"When all about you are losing theirs"—

You simply don't understand the situation.

What a grand world this would be if we could forget our troubles as easily as we forget our blessings. —P. T. Messenger.

Out of Our Mailbag

This letter is reproduced exactly as "Dope" received it:

Couple old boys, out our way, lost their jobs. After talking the matter over they decided to cash in their War Bonds, and buy a farm. They took off on the Highway across the country, until they discovered a farm which appeared to be what they liked.

Stopping to inquire if it was for sale, the found "Farmer John" singing the "blues"—due to the drouth, he had been making One Hundred and Fifty Dollars per week, without much work to do. They were working in a nice clean factory building, with lots of

cigarettes, candy and soda pop vending machines, and had their pockets full of nickles and dimes to operate the machines.

They and their "Buddies" were singing and merrymaking all day long. Now this factory is closed down.

Ike's "messed" up this country, just like Harry and Adlai told us he would do.

On the other side of the huge iron stove sat John Junior, with a smiling face and big bright eyes running over with joy, all of which was very much in contrast and out of order for the occasion. Regardless of the depressed attitude of his older associates, the young lad inquired, "What were you gentlemen making in this factory?" One of the old boys replied: "Machine gun bullets." The young lad explained he, too, had lost his job and had come back home to stay with "Dad" and "Mom." One of the old boys remarked: "How strange, you do not appear to be worried about it."

At this point, the young lad replied: "You bet your buttons, I am not worried, I am happy about the whole deal. You blood money gluttons are getting the raspberries from my "Buddies" and me. Our jobs were over in Korea, for fifty dollars per month; we were wading through the cold mud and snow, shooting your machine gun bullets at the red "chinks" and they shooting the same at us. Cigarettes, candy bars and soda pop were then with us as jobs are now with you. My "Buddies" and I were not singing and merrymaking all day long, but dropping dead night and day; with hunger, cold, and enemy bullets. Now, would you gentlemen go over and shoot bullets three years, while we make them for you, while we acquire enough money to buy us a farm?"

Junior continued on to explain he shot bullets for three years in the Pacific War and three years in the Korean War. Any one month of those six years would be sufficient experience to bring anyone to a realization war is the worst road any generation of humanity has ever traveled, and it is definitely the shortest, as well as the surest return route to chaos. At this juncture, both old boys spoke up, claiming common sense reasoning, without experience, must go along with that.

Just then the voice of Junior's mother came out from behind the stovepipe stating: "In six months, Ike got us off this terrible road, which we have been traveling the past twelve years, and already in the suburb of chaos. It is a crying shame your common sense is so common you are unable to reason the fact—getting us off of this terrible road in six months is much better than getting us on it, and keeping us on it for twelve years. Before we can get back on the right road, we must first get off the wrong road, and construct the right road, which necessarily must require considerable time, courage, and 'know-how.' Up to now, Ike's 'know-how' has proven satisfactory. If we support him with our courage and let the time have its own way, we will get the job done, in such way the American history books will provide future generations of free Americans with the information their ancestors, under the leadership of Franklin D. Roosevelt, made. In a two Ocean War they were able to bring the military might of Germany, Italy,

and Japan to unconditional surrender.

"In the preceding chapter, they will learn their preceding administration, the same generation, got their pants shot off in an attempted police action in Korea. They will further learn of a considerable accomplishment in what they may term as an attempt at legislating a full scale of Communism: In the name of a National emergency, arising out of police action. In the light of their National History, shortly, they will sing 'God Bless America and McCarthyism.'"

She continued: "I see nothing unusual about this situation, you gentlemen should have expected this condition following a war. It was like this for a long time after Junior's 'Pa' came home from the first World War, and it was like this when Junior came home from the second World War, and it was like this when Junior came home from the third time. Surely, this is one of the many ugly results of war, and we would be very ugly ourselves in blaming the people who stopped the war instead of the blaming the war.

"Of course, this drouth has given us double trouble. We got our electricity in last spring. We planned to buy a lot of electrical equipment—refrigerator, washer, and a freezer. 'Pa' had already picked out an electric feed grinder. The old one that the horses pulled is so badly worn he can hardly do anything with it any more. We have nothing to sell, so we cannot buy anything. The people who work in the factories, where these things are manufactured, are having double trouble, too.

"I hope those people feel the same way as we do—we are going to stick it out, and stick all the way with Ike. He had what it took to get us off of the road of chaos, surely we can trust him to have what it takes to get us on a road to Peace on Earth and Good Will Toward Man. Then we can have our electrical things we need and you gentlemen will be back in your factory making the things which will make people happy and live longer. Then we will all be merrymaking and not falling to death, in the cold and mud and snow."

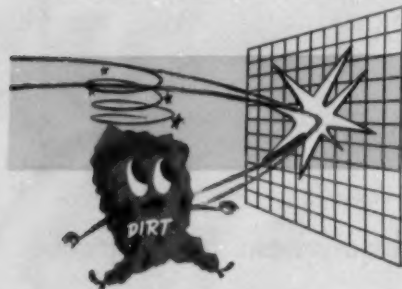
At this both old boys admitted they could see a new picture of the deal, and, in the light thereof, they had no desire for a part in the shooting of the bullets. They praised to the good Lord that they be forgiven of the terrible sin they had committed by finding happiness and pleasure in the results of war.

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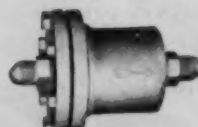
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NEMA Freezer Sales for October Dip 8% Below '53; 587,821 Units Sold In 10 Mos.

NEW YORK CITY—October home freezer sales of 22 manufacturers reporting to the National Electrical Manufacturers Association were only 8% below the level attained in October, 1953, by the same group, a report by NEMA indicates.

For the first 10 months of the year, sales were 20% below last

year. During last October, these manufacturers sold 53,330 units, which was 16% fewer than in September. For the 10 months, they sold 587,821 units.

Sales to foreign countries other than Canada were 3% ahead of September, while those to Canada dropped by more than 50%, the report indicated.

Summary for October and First Ten Months, 1954

Electric Farm and Home Freezers—Complete—Sales by Sizes—Units
Farm and home freezers complete with high and low side and cabinet, where 50% or more of the net cabinet capacity is designed for the freezing and/or storage of frozen foods.

OCTOBER (22 Companies)				
Sizes	Domestic (48 States and D. C.)	Canadian	Other Foreign	Total
1. Less than 5 cu. ft.				
Chest Models	*	*	*	*
Upright Models	†	†	†	†
2. 5 and 6 cu. ft.				
Chest Models	*1,342	*	*2	*1,344
Upright Models	†	†	†	†
3. 7 and 8 cu. ft.				
Chest Models	3,270	117	323	3,710
Upright Models	†	†	†	†
4. 9 and 10 cu. ft.				
Chest Models	‡	‡	‡	‡
Upright Models	1854	†	126	1880
5. 11 and 12 cu. ft.				
Chest Models	16,175	13	1218	16,396
Upright Models	4,658	64	138	4,860
6. 12.5 to 17.4 cu. ft.				
Chest Models	15,474	77	121	15,672
Upright Models	6,913	12	107	7,032
7. 17.5 to 21.4 cu. ft.				
Chest Models	6,346	56	41	6,443
Upright Models	5,379	5	9	5,393
8. 21.5 to 30.4 cu. ft.				
Chest Models	804	2	3	809
Upright Models	1789	11	11	1791
9. 30.5 to 40.4 cu. ft.				
Chest Models	§	§	§	§
Upright Models	§	§	§	§
10. 40.5 to 50.4 cu. ft.				
Chest Models	§	§	§	§
Upright Models	§	§	§	§
11. 50.5 to 60.4 cu. ft.				
Chest Models	§	§	§	§
Upright Models	§	§	§	§
12. 60.5 cu. ft. and over				
Chest Models	§	§	§	§
Upright Models	§	§	§	§
Total Chest Models ..	33,411	255	708	34,374
Total Upright Models ..	18,593	82	281	18,956
Total All Models	52,004	337	989	53,330

FIRST TEN MONTHS (24 Companies)

Sizes	Domestic (48 States and D. C.)	Canadian	Other Foreign	Total
1. Less than 5 cu. ft.				
Chest Models	*	*	*	*
Upright Models	†	†	†	†
2. 5 and 6 cu. ft.				
Chest Models	*9,069	*9	*74	*9,152
Upright Models	†	†	†	†
3. 7 and 8 cu. ft.				
Chest Models	24,399	1,049	2,151	27,599
Upright Models	†	†	†	†
4. 9 and 10 cu. ft.				
Chest Models	‡	‡	‡	‡
Upright Models	11,275	1377	1462	12,114
5. 11 and 12 cu. ft.				
Chest Models	171,207	11,088	12,217	174,512
Upright Models	62,719	624	1,596	64,939
6. 12.5 to 17.4 cu. ft.				
Chest Models	169,804	2,909	1,623	174,336
Upright Models	72,350	1,171	892	74,413
7. 17.5 to 21.4 cu. ft.				
Chest Models	82,985	2,081	430	85,496
Upright Models	45,406	246	315	45,967
8. 21.5 to 30.4 cu. ft.				
Chest Models	9,820	173	107	10,100
Upright Models	19,151	14	138	19,193
9. 30.5 to 40.4 cu. ft.				
Chest Models	§	§	§	§
Upright Models	§	§	§	§
10. 40.5 to 50.4 cu. ft.				
Chest Models	§	§	§	§
Upright Models	§	§	§	§
11. 50.5 to 60.4 cu. ft.				
Chest Models	§	§	§	§
Upright Models	§	§	§	§
12. 60.5 cu. ft. and over				
Chest Models	§	§	§	§
Upright Models	§	§	§	§
Total Chest Models ..	367,284	7,309	6,602	381,195
Total Upright Models ..	200,901	2,422	3,303	206,626
Total All Models	568,185	9,731	9,905	587,821

*Chest models for items 1 & 2 combined because of possible disclosure of individual company data.

†Upright models for items 1-2-3-4 combined because of possible disclosure of individual company data.

‡Chest models for items 4 & 5 combined because of possible disclosure of individual company data.

§Upright models for items 8, 9, 11 & 12 combined because of possible disclosure of individual company data.

Participating companies: Admiral Corp.; Appliance & Electronics Div., Avco Mfg. Corp. (Crosley & Bendix Divs.); Ben-Hur Mfg. Co.; Carrier Corp.; Deepfreeze Appliance Div., Motor Products Corp.; Frigidaire Div., General Motors Corp.; General Electric Co.; Gibson Refrigerator Co.; Hotpoint Co., Div. of General Electric Co.; International Harvester Co.; Kelvinator Div., American Motors Corp.; Maytag Co., The; Norge Div., Borg-Warner Corp.; Philco Corp., Appliance Div.; Quicfrez Inc.; Revco, Inc.; Seeger Refrigerator Co.; Servel, Inc.; Sub Zero Freezer Co., Inc. (in 10-1-54); Victor Products Corp.; Westinghouse Electric Corp.; Wilson Refrigeration, Inc.; A. J. Lindemann & Hoverson Co. (out 2-1-54); Masterfreez Home Locker Mfg. Co. (out 5-1-54).

Jordan Redesigns Line Of Uprights for More Capacity In Less Space

PHILADELPHIA—Jordan Refrigerator Co. is completing research on a completely redesigned line of upright home freezers to provide greater capacity in less floor space, according to Frank Fogel, president.

In addition, he said, Jordan is planning a smaller model of its "Duplex" combination refrigerator-freezer to meet the needs of smaller homes and apartments. Also being planned is a line of "built-in" upright freezers and combination refrigerator-freezers.

"We have invested over \$300,000 in research, tools, and dies for this new line," Fogel said. "It will be introduced early in 1955."

Fogel also announced that Jordan's gross sales volume for 1954 will top an earlier prediction of \$15,000,000 and the company will definitely record increased sales of between 20% to 25% over the year 1953.

The big bulk of the company's increased sales for this year, he said, was recorded in its domestic line of upright home freezers and refrigerator-freezer combination with the refrigerator on top. Its line of commercial refrigerators and freezers "also showed a nice increase over last year," it was reported.



HOME & FARM FREEZERS



Miller Heads Operations For Deepfreeze Div.

N. CHICAGO, Ill.—Appointment of Seth Miller as manager of operation for Deepfreeze Appliance Div., Motor Products Corp., has been announced by F. F. Duggan, vice president and general manager.

Miller will have over-all responsibility for production, personnel, and purchasing for all Deepfreeze manufacturing operations. He succeeds Pat Leone, resigned.

Associated with Motor Products Corp. for 33 years, Miller has served in production supervisory positions both for the parent firm in Detroit and for Deepfreeze in North Chicago and Lake Bluff, Ill.

Starting as a tool and die maker apprentice at the age of 15, he advanced to production superintendent and handled special production assignments for the company president in Detroit. He joined the Deepfreeze division in 1944 as production superintendent and became master mechanic.

Later he served as factory manager at Deepfreeze.

Orley Plans 2-Model Line For Distribution Through Food Plan Operators Only

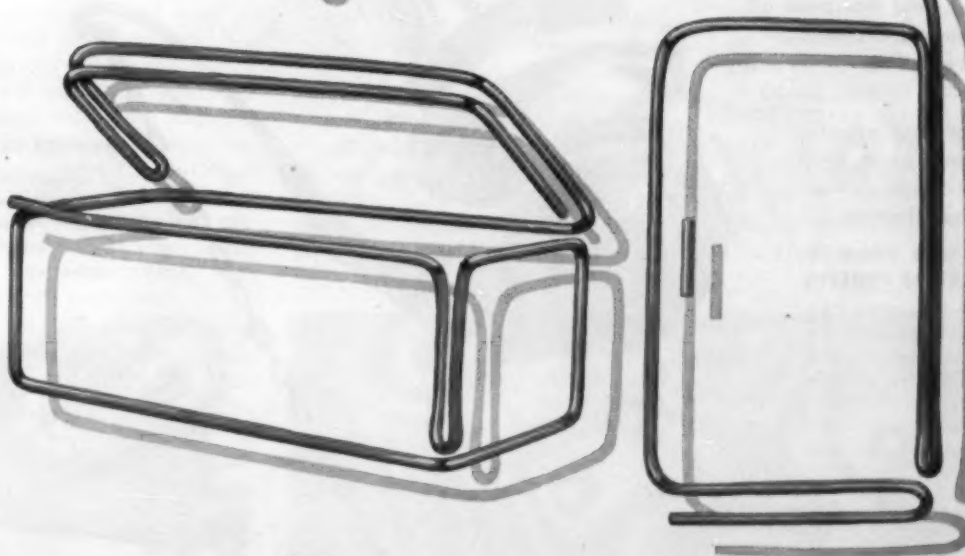
NEW YORK CITY—Orley Freezers, Inc. of Detroit next year will manufacture a two-model line of upright freezers for sale through food plan operations only, it was made known here recently.

One model has a capacity of 15.5 cu. ft. and the other is a 19.5-cu. ft. unit. They are Orley's first uprights. The smaller unit was presented to food plan dealers at a New York showing.

It was also announced that Orley has discontinued two of its chest-type freezers—13 and 16-cu. ft. models—and is continuing its present line of 8, 15, and 21-cu. ft. chest freezers and also commercial models. Scheduled for future development is a two-temperature combination freezer-refrigerator, according to Edward D. Burd, sales manager.

Burd said suggested list prices of these models will be established by sales districts.

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and can take
any shape



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AIR CONDITIONING & REFRIGERATION News

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F. M. COCKRELL, Founder

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Finest New Models In Many Years

Exciting is the array of household refrigerators and freezers—plus home air conditioners, dishwashers, and laundry equipment—which hard-eyed buyers are seeing this week in Chicago at the annual "Marts."

Not in the last dozen years have distributors and dealers found so many new sales-angled products to stir their stumps, and make them feel like getting out and selling.

Frigidaire, Kelvinator, Deepfreeze, Norge, Amana (to name a few outstanding examples) are displaying at the Chicago Marts this week the most excitingly novel and useful products they've exhibited since World War II began.

As a Detroit branch manager puts it (he's a fighting Irishman, named Maloney): "This year we have something we can enjoy selling. Most other lines of refrigerators and freezers have been merely rearranged boxes. This new line of ours is so different and original it's an inspiration."

Taking a cue from the automotive industry, COLORINGS are significant in 1955 "big ticket" appliances.

It used to be that you could get a refrigerator or freezer in any old color so long as it was white. Last year Frigidaire pioneered pastel shades—somewhat tentatively. This year COLOR is breaking out all over. Everybody has it, and it's good.

Those 1955 convenience features we've seen are something to rise up and applaud, also. Calculated to make every housewife—and even a lot of husbands—dissatisfied with what they have now, these brilliant new features should sell plenty of merchandise in the year beginning right now.

To the editor of the industry's only weekly newspaper, all this advanced styling and engineering is wonderfully welcome. For a

They'll Do It Every Time Jimmy Hatlo



dozen years, it seems, the annual introduction of new models has been rather dull to us. A newspaper thrives on news; but the stuff shown UNTIL NOW just didn't appear to have much news value, in our possibly jaded opinion.

THIS YEAR IT HAS.

Not only do editors of AIR CONDITIONING & REFRIGERATION News feel rejuvenated. Dealers and distributors whom we've interviewed this week have exchanged their bored attitude for a feeling of eagerness.

No longer are they looking solely for under-counter price "deals." They are ready to do what they've wanted to do for too long:

Present to customers great new products which will enhance their prestige in the communities they serve.

As one Midwestern distributor put it to us:

"If I can't push up my sales volume 30% with this line in 1955, I oughtta go back to my grandfather's farm."

To the designers and engineers who dreamed up these stimulating refrigerators, freezers, room coolers, etc., the weekly News offers sincere congratulations. Likewise, to the purse-string-holding executives who approved expensive expenditures for tooling, promotion, et al, we say: "You're on the right track!"

And to the nation's best dealers and distributors—those who will get the bulk of the business—we declare with sincere warmth:

"We're happy for you, and we'll be happy with you. There should be good NEWS this year!"



Dryomatic Corp.
P.O. Box 334
812 N. Fairfax St.
Alexandria, Va.

Editor:

Thought you might enjoy Robert Albright's column from the *Washington Post*, as you are always publishing little stories about the sufferings of the un-air conditioned millions.

I always look forward to your paper very much. Keep up the good work. One of these days I'll get around to writing an article on the use of chemical adsorption dehumidifiers in conjunction with air cooling equipment.

Quote from Albright's column:

"If Deputy Attorney General William P. Rogers has his way, a lot of superheated Southern court-houses are going to burgeon out with modern air conditioning systems."

"Last summer, Rogers attended a meeting of the Fourth Judicial Circuit, embracing Virginia, the Carolinas, West Virginia, and Georgia. The circuit had a big backlog of cases, but the judges weren't able to try them. Why? Their courtrooms were simmering at temperatures of more than 100°."

"Complained Rogers:

"The whole Federal machinery—fully paid for—came to a standstill for lack of a relatively inexpensive air conditioning system."

"That's penny wise and pound foolish!"

ANTHONY HASS

846 Third Ave.
Troy, N. Y.

Editor:

My 14-year-old, second-year high daughter saw me making out this \$12.00 check for a three-year subscription to the News and, spotting an opportunity to get even with me for one of my many previous lectures, asked me what I was getting for my \$12.

I immediately welcomed the challenge and started to enumerate. When I finished refrigeration and air conditioning school, I had a sound foundation in theory and practical application as of that day. And though I started to make my living by doing most of my work satisfactorily, I was continuously running into situations that strained my ingenuity and left me with a feeling of wishing there was a better way. Or a customer would ask me about a possible newer theory and application.

I might never have heard or seen this particular thing locally, but by reading about it in the News I immediately maintained my expected prestige by being able to explain theory and possible local application.

Each issue of the News is like the dawning of a new day. After absorbing its contents, I feel more capable to handle tougher problems. I realize more the immensity of our growing industry, and the prouder I am to be a tiny speck in the universe of refrigeration. Conservatively, I would say it's a bargain.

DAVID J. BROUGHEL
Independent Serviceman

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It was in 1906... nearly half a century ago... that the BRUNNER name was added to the comparatively small list of America's industrial pioneers.

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The Brunner Co., Gainesville, Ga.
In Canada:
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Profit Opportunity
Advertising Support
Sales Promotion Help

Theaters—First Big Market For Cooling—Later Sparked Growth of Packaged Units

NEW YORK CITY—While most everyone in the air conditioning field is aware of the fact that theaters were among the first to recognize, and give impetus to, "comfort cooling" as a necessary ingredient in insuring satisfaction of the American buying public, not all are aware of the stages of evolution of the completely air conditioned modern movie palaces of today.

And in the origins and evolution of theater cooling was born and bred the present Typhoon Air Conditioning Co.

It was Irving Glantzberg, a New York mine ventilation engineer, who in 1909 first conceived the idea of using giant fans similar to the type then employed in mines to cool the nickelodeon theaters of that time.

"Midsummer shutdown," an established tradition in the legitimate theater business, was also observed by the small motion picture theaters. They would simply shut their doors in the summer as soon as rising temperatures made attendance fall off. The only attempt at cooling in those days was the use of large circulating fans, which only served to provide air motion and were almost totally ineffective during the warmer months in the small, unventilated "alleys" that served as theaters.

The economics of the young and vigorous motion picture industry, however, made it imperative that business be operated on a year-round basis. So Glantzberg found a ready market for his huge ventilating fans, which were mounted singly or in pairs on the roof or in the walls of the theater, to pull outside air into the building and create a mammoth cooling draft.

In the spring of 1910, Glantzberg's small company, which he had organized as the Typhoon Fan Co., got its first real break. The Rialto Theater on Broadway had just been completed, with the original intention of using it for burlesque. But construction had fallen behind schedule, and by the time the theater was ready for use, the burlesque season had come and gone.

With summer staring him in the face, the owner was in serious trouble. He decided to take a flier—to build an orchestra pit, dress up his ushers in fancy uniforms, and show motion pictures right through the summer! He had heard of Glantzberg's "Typhoons," and hired the engineer to cool the Rialto, by far the biggest job Glantzberg had yet tackled.

That summer, the Rialto Theater opened its doors to surprised and delighted crowds, and became the first large year-round motion pic-

ture theater of the general type that we know today.

During the next few years, over 8,000 Typhoon fan systems were installed in theaters, hotels, stores, and restaurants in this country, and abroad. During the twenties, though still known as the Typhoon Fan Co. and specializing in the manufacture of the big fans, the company developed a system of air conditioning using large quantities of ice, over which water was sprayed. The chilled water was then passed through cooling coils, and blowers blew air across the coils to cool the theater.

Typhoon's patented "Icedaire" regulating valve made possible a by-pass arrangement whenever the return water fell below a certain temperature. This system found wide acceptance, and until very recently, was widely used in New York's legitimate theaters. It is still in use in many legitimate theaters having large peak loads of short duration.

In 1931, the company changed hands. The new owners were J. F. Dailey, who had worked for the company as a sales engineer since 1911, and Edward L. Garfield, who had been an engineer under Glantzberg since 1914. These two men bought the company outright, and Glantzberg left to form another business.

During the next few years, the company produced central station air conditioning systems, handling the complete job from assembly of the components to installation and servicing. Most of this work was performed right in the New York area, and it gave Typhoon's engineers and servicemen a wealth of experience for later use as the company turned to manufacture and was faced with the installation and service problems encountered by dealers.

Early in 1935, Typhoon's management decided to manufacture a packaged unit. The first units were completed during the summer of 1935, and in 1936 Typhoon began to sell 5-ton packaged units in quantities.

The company continued as both manufacturer and contractor until the start of the war, when curtailment of all materials and components slowed down the company's civilian operations to a point where it became relatively simple to make a complete break from the contracting business, and concentrate on manufacturing of packaged equipment.

When the war ended, Typhoon was still considered as primarily a specialist in theater air conditioning. Immediately, however, the company sought to broaden its operations, and set out to prove that

(Continued on Page 20, Col. 1)

Typhoon Completes Move to Larger Plant, Gets Set for Increased Production

(Continued from Page 1)

vice president in charge of sales, bringing with him the experience of many years with leading manufacturers in the industry; and A. G. Masiello, an energetic young veteran of 16 years in the business, rounded out the sales staff as assistant sales manager.

Originally located in Manhattan, Typhoon moved in 1946 to a three-story building on Union St. in Brooklyn. Three years later, the company began expanding by renting additional floors in an adjacent building, and acquired a second plant about a mile away for cabinet assembly. Now, with the purchase of an entire block-through factory on Carroll St., Typhoon has managed to consolidate all manufacturing operations, and is set for future expansion.

One of the most important factors contributing to the growth of the company was the decision, made as the company resumed manufacturing operations after the war, to specialize in packaged air conditioning alone.

Package Unit Market Seen

Typhoon set out to prove that the scope of self-contained air conditioners was almost unlimited by pioneering in many new types of application, and by designing and improving successively larger units.

In the summer of 1945, when a young Air Force captain named Don V. Petrone was released from the service, and without even pausing for a vacation, returned to his job as sales manager for the Typhoon Air Conditioning Co., Inc., he realized that a world of opportunity lay ahead for air conditioning.

For five wartime years Typhoon had found it necessary to abandon most of its air conditioning work, since air conditioning materials and components were generally unavailable, and the manufacture of this type of equipment for civilian use was strictly controlled. War contracts, such as several orders for heating coils for the U. S. Merchant Marine, kept the factory operating, but the manufacture of air conditioning appeared to be impossible for the duration of the war.

In the War Years

However, the management was determined to keep some kind of air conditioning production in the shop. So they turned to rebuilding, installing, and servicing whatever equipment they could find. Through constant and energetic scavenging, they unearthed enough materials and components to put together one or two air conditioning systems every month, and since air conditioning was so scarce, they found no lack of customers.

James F. Dailey, who was at that time president of the company, concentrated on selling and installation, while E. L. Garfield, then Typhoon's chief engineer, scouted junkyards, auctions, bankruptcy sales, and other possible sources of used equipment. An enthusiastic amateur aviator, Garfield often used his small plane to fly to distant points if he saw a chance of picking up components that could be reconditioned.

An example of how this paid off was the case of the installation at Benton & Bowles, a leading New York advertising agency. During the war, Typhoon installed a jerry-built system to cool the agency's conference and audition room. When the war was over, Benton & Bowles decided to air condition their inside telephone switchboard room, and a Typhoon packaged unit was installed mainly on the strength of the earlier installation.

Murray Kabili, who is now Typhoon's chief engineer, says that

the war years gave the company's engineering department excellent training and experience. "When you're working with whatever materials you can find," he says, "you really have to know what you're doing. Several ideas developed of necessity during that period were later incorporated in the regular manufacturing process for our packaged units."

Petrone Takes Some Steps

When Don Petrone returned to Typhoon, he found that a great deal had to be done before the company could make a real bid for a share of the postwar packaged air conditioning business. Dealers for Typhoon's packaged units had been set up at scattered points across the country, but they had naturally turned to other pursuits when air conditioning was "frozen," and had to be wooed all over again. Furthermore, the supply of materials was still critical, and the manufacture of essential components was only a thin trickle.

So the firm launched a concerted drive to find copper and sheet metal, compressors and coils, and put wartime scavenging skills to good use. While larger companies were still trying to get organized and to buy in sizeable quantity, Typhoon's flexibility and determination to get going gave the New York company enough materials to start production on a small scale at a time when all you had to do to interest a dealer was to tell him you could send him one or two units.

Value of 'School Circuit'

Finding the dealers was the next step, of course. While scouting for materials, Typhoon's principals had already begun the spadework, and now, while Dailey stayed close to New York to revive Typhoon's major pre-war market, the theater industry, Petrone and Garfield literally "beat the bushes" for new dealers.

In 1947, Typhoon began what has since become one of their most valuable tools in building up their network of dealers. With a textbook engineering manual that applied directly to Typhoon packaged units, they began holding dealer schools across the country—the Typhoon "School Circuit," initiated personally by Petrone and Art Farr, Typhoon chief application engineer.

Refrigeration men were the primary target—men who were accustomed to handling all types of refrigeration work. In town after town, Typhoon's team of top executives set up five-day schools to teach these refrigeration dealers how to calculate a cooling load, how to install air conditioning properly, and how to service it.

Pages in the manual were also devoted to selling air conditioning, and although in many cases the demand was so great that selling was superfluous, this training and instruction stood the Typhoon dealers in good stead as the market settled down and it became necessary to use a strong selling approach.

Typhoon and the Heat Pump

In 1950, it became apparent that the heat pump, based on the principle of the reverse refrigeration cycle, was finally approaching the practical stage. The rapid development of packaged air conditioning made heat pumps feasible on a commercial scale, and Garfield set out to capitalize on Typhoon's experience in packaged air conditioning to produce a compact packaged heat pump.

The groundwork had already been laid in Florida. A Typhoon dealer, Sam Graziano, in Tampa, had been experimenting for several years with the conversion of Typhoon packaged units to heat pumps, by the addition of a four-way valve and a few other minor modifications. Several hundred field installations had been made, and careful testing and recording of performance and costs led Garfield to the conclusion that this "revolutionary" machine could provide the basis for an entirely new source of business.

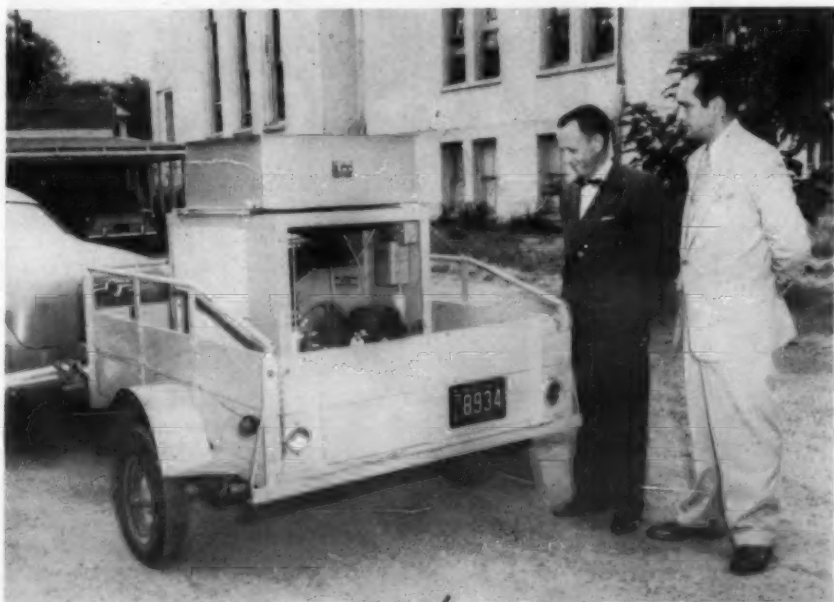
Accordingly, in 1950, the Typhoon Prop-R-Temp Corp. of Florida was formed as an affiliate of The Typhoon Air Conditioning Co. Located in Tampa, the new corporation produced heat pumps exclusively. Garfield, Typhoon's treasurer, headed up the corporation as president, while Dailey, who turned the presidency of Typhoon over to Petrone in 1953 to become chairman of the board, served as treasurer of Prop-R-Temp.

All Typhoon Prop-R-Temp heat pumps are of the water-to-air type. The company claims to have sold more packaged heat pumps in Florida and surrounding states than any competitor, but has not restricted distribution to the southeast, however, having sold a number of installations through Typhoon's dealer network.

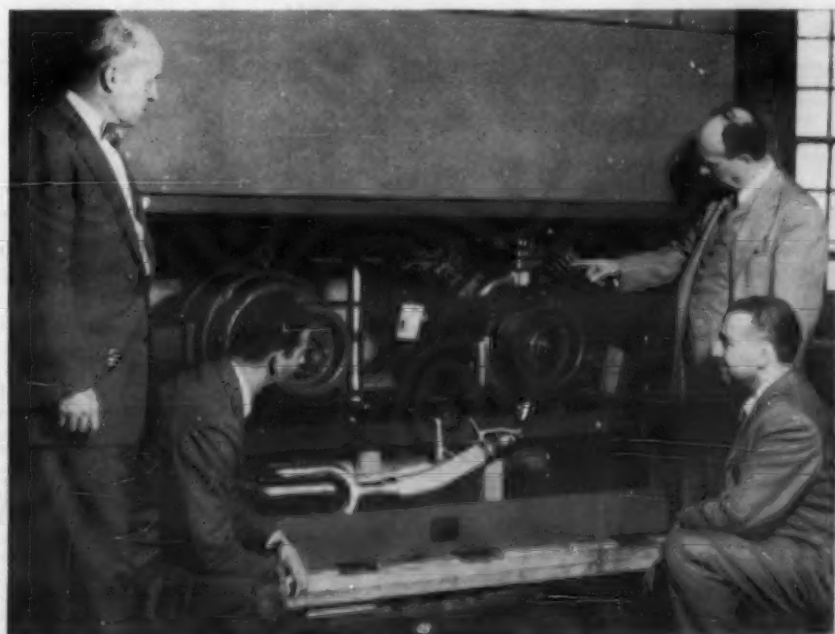
Ten packaged Typhoon Prop-R-Temp heat pumps have been installed in the main shopping center in Levittown, Pa., and others have been installed in the midwest, and in Nevada, California, and the state of Washington. In one new shopping center at Fort Sutter, Calif., there are 80 tons of packaged Typhoon heat pumps.

The tremendous market growth of air conditioning in 1952 and 1953 brought Typhoon again to a

(Continued on next page)



TO "TAKE THE PRODUCT" right to the dealer's or customer's door would once have been impossible with an air conditioner, but not with the compact models being produced today. Don V. Petrone (right), president of the Typhoon Air Conditioning Co., Inc., and R. B. Cherry, Jr., the firm's district sales manager in Texas, show here how they rigged up a trailer to take a residential "add-on" unit right to a prospect's door.



FIRST OF NEW 30-TON Typhoon packaged air conditioners to come off the production line gets an approving once-over from (l. to r.) Mark E. Mooney, vice president in charge of sales; A. G. Masiello, assistant sales manager; Maurice Fireston, New York regional sales manager; and (kneeling at right) Murray M. Kabili, chief engineer.

New Typhoon Plant Set for Better Production--

(Continued from preceding page) point where expansion was essential. The once ample quarters in the Brooklyn factory had been enlarged several times by renting several entire floors in the adjoining building; and a separate factory building a half mile away, which had originally been rented to take care of a large government order in 1951, was retained to increase the company's manufacturing space. In addition, it was necessary for Typhoon to rent storage space at several points near the factory, to take care of the inventory at the beginning of each air conditioning season.

So it was that in April, 1954, negotiations were begun to purchase a much larger building a short distance away from the plant on Union St. The purchase of the building was marked by an interesting coincidence; the signing of the papers to take possession occurred just 40 years from the day that Board Chairman James F. Dailey first joined the company.

The new building more than doubled the amount of space available for manufacturing, and provided enough open floor area for a 1,000-ft. assembly line, as well as ample space for all of the other manufacturing departments, and for storage.

Naturally, before the decision was made to purchase another

building in Brooklyn, there had been considerable discussion as to whether Typhoon should follow the example of several other air conditioning manufacturers and move the factory out of the area entirely, toward the south or southwest. Typhoon's management, however, felt that location in Brooklyn would be more practical, considering the increasing number of shipments made recently by water routes to Gulf ports and the West Coast.

In addition, the New York Metropolitan area offers a ready supply of skilled labor, and the company was anxious to retain the loyal, experienced workers who had helped build the business. This location also provides ready access to the New York air conditioning market, which, according to Petrone, "offers the greatest potential for commercial air conditioning units of any area in the country."

The decision of the Typhoon Air Conditioning Co. to move to a larger factory building was as much a matter of necessity as it was a matter of choice. For future expansion of production, which is definitely indicated according to the steadily increasing rate of packaged air conditioning sales by the company in the past few years, it was essential to find factory space which would allow generous space for increased output. But it was also a fact that the existing

factory facilities on Union St. in Brooklyn were inadequate and inefficient.

Additional Facilities Added As Production Rose

To produce packaged Typhoon units during the 1954 season, Typhoon made full use of the three-story building which it had acquired in 1946, plus three floors of the adjoining building, floors which had been rented one at a time as the company's production grew.

In addition, Typhoon had taken over a completely separate factory building about a mile away from Plant No. 1, and it was in this second plant that all cabinets for Typhoon units were fabricated, painted, baked, insulated, and otherwise prepared for the assembly line at the Union St. plant.

In addition to this, there were often times when production of stock units made it necessary to take over additional storage facilities wherever they could be found. Thus it was that, during the early months of 1953, for example, Typhoon units and cabinets could be found in no less than five different buildings in the general vicinity of the main plant. This naturally led to much wasted time and effort, and to service this disjointed operation, several private trucking companies were growing rich at the expense of the manufacturer.

Thus the most important single objective in setting up the new plant was to provide a production line which would allow packaged units to roll on their individual "dollies" through successive assembly areas, starting with an empty cabinet and ending with a completely finished and tested unit.

At the new Carroll St. plant now occupied by Typhoon, this objective has been attained. There is now a 1,000-ft. assembly line, which permits the units to remain on their dollies, and to be processed through each assembly area right up to the dressing and crating departments,

where, when they are crated and stencilled, they are in position for immediate shipment or for removal to the storage area.

The use of dollies for the movement of these packaged units through the plant is one of the outstanding features of Typhoon's method of production. This extremely flexible system permits many practices which are not possible in the conventional mass-production setup, or one which is based on the use of continuous belt movement.

(Continued on next page)



COLD ROLLED FURNITURE steel is unloaded from truck at lower level receiving bay at the new Typhoon plant. It will be swung by ceiling-track crane to stockpile area, where the company stores large quantities of sheet metal to permit long runs to be made of any particular model. Other types of shipments are received by large overhead crane outside building.



SPECIAL METHOD which allows the operation to be accomplished in a single handling is used to square and cut to size sheet metal—20 to 11 gauge—on a 10-ft. power shear.



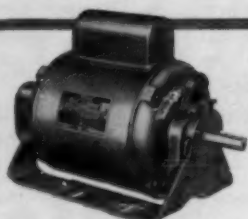
TWO POWERFUL PRESS brakes blank, punch, notch, extrude, and form the heavy furniture steel sheets to their final shape as parts of Typhoon packaged unit cabinets.



SKILLED PRESS brake operators form side panel for Typhoon's new 30-ton packaged air conditioning unit. Operation is carefully controlled, to insure that all such parts will form strong, rigid, vibration-free cabinets.

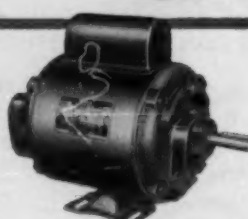


Here's why the
Wagner Type **RK**
Capacitor-Start Motor
is the
Right **K**ind
of motor
for your
singlephase
applications



NEW 56 FRAME RESILIENT MOUNTING—This Wagner Type RK is shown in the new 56 frame that is used for 1/2, 1/3 and 3/4 hp ratings. The resilient mounting offers unusual freedom from vibration and noise.

Smaller fractional ratings, and integral sizes from 1 through 5 hp, are also available.

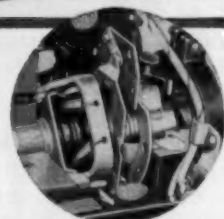


NEW 56 FRAME WITH WELDED RIGID BASE—Wagner rigid base Type RK motor, in the new 56 frame size. The formed steel base is securely welded to the rolled steel frame to produce a strong, rigid assembly that will not get out of alignment.

Type RK is also available with machined and plates for flange mounting.



THICK ROLLED STEEL FRAMES—Frames for these motors are made of thick rolled steel, with machined heads on each end which accurately position the end plates. The frames have no openings, and are treated inside and out to prevent rusting.



LONG-LIFE CENTRIFUGAL SWITCH—These motors are equipped with the Wagner-made quick-break switch that disconnects the starting winding and capacitor from the line when the motor approaches operating speed. It will make over a million starts and stops without trouble—your assurance of years and years of unfailing performance.

A lot depends on the motor you specify to power your product. The selection of a Wagner Motor will assure:

Customer Acceptance that results from the recognition of a motor built by a manufacturer with a proven reputation for quality motors...

Customer Satisfaction that results from uniform trouble-free performance and long-life operation...

Customer Service possible only when the motor manu-

facturer has the ability and the organization to provide immediate repair parts and service, *when* and *where* they're needed.

The Wagner Type RK Capacitor-start induction motor meets these requirements and offers the additional advantages shown above. That's why the RK is first choice of many leading manufacturers of machines and equipment that require singlephase motors in fractional or integral ratings up through 5 hp.

Your nearby Wagner engineer can help you select the right motor for your application. Call the nearest of our 32 branch offices, or write us.



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ELECTRIC MOTORS
TRANSFORMERS
INDUSTRIAL BRAKES
AUTOMOTIVE
BRAKE SYSTEMS—
AIR AND HYDRAULIC

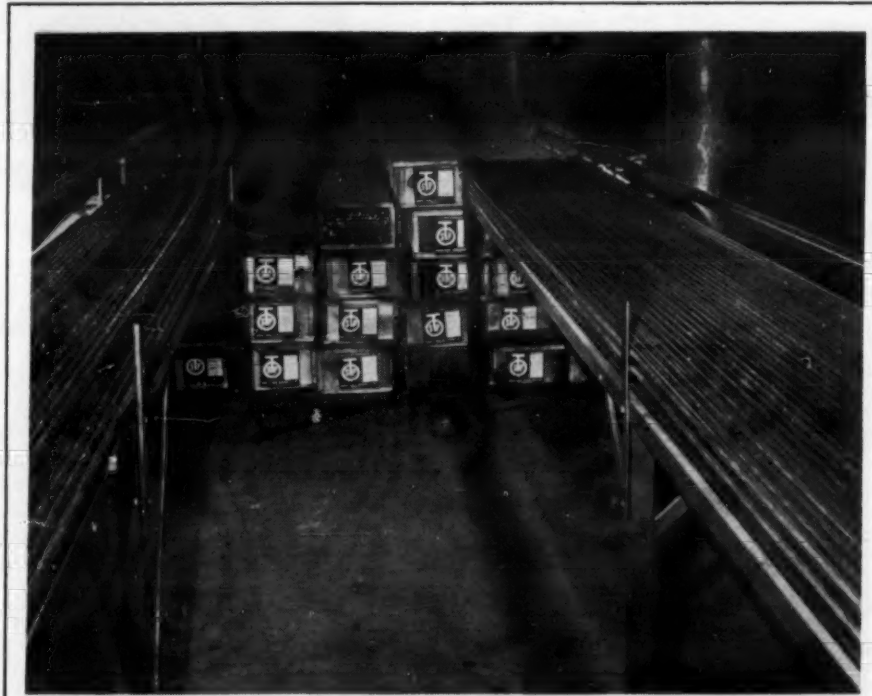


why

SMALL TUBE PRODUCTS, INC.

IS A BIG PART

of
the



TYPHOON
AIR CONDITIONING

picture

Top quality products . . . top quality service . . . and the personal attention of *management* to every Typhoon order. This is why Small Tube Products is the major supplier of copper tube to Typhoon Air Conditioning Company.

If you would prefer custom craftsmanship and personalized service, we invite you to compare the quality, reliability and *management* attention of Small Tube Products.

SMALL TUBE PRODUCTS, INC., WATERBURY, CONN.

Skilled producers of Brass, Copper and Aluminum tube

Special Production with Minimum Effort--

(Continued from Page 12)

For example, any time an order for a special unit is received, a stock unit can be removed from the production line, given special treatment and returned, properly fitted and marked, for finishing with the standard units. If this flexibility were not possible, the special unit would have to be processed from the beginning stages of assembly—and it is a well-known fact that orders for specially constructed units are usually accompanied by an urgent appeal for immediate shipment.

Admittedly it would be easier to put strict limits on the acceptance of special orders, but having built a good deal of business and reputation in the field on the ability to accommodate this type of special order, the Typhoon management feels that by continuing the practice they offer a special service to dealers.

Another unusual facility offered by the individual dolly method of moving units through the plant is that production runs can be varied during the height of the season to accommodate changes in dealer demand.

For example, if a run of 100 5-hp. units is being processed, and stock is suddenly depleted on 7½-hp. models, the larger cabinets can be rushed to the assembly line and pushed ahead of the stock units then in production.

It is also possible with this system to run two or three outsize models, for example the 25 or 30-hp. units, through the production line at any time, without seriously affecting normal operations. This is helpful, since these very large units are not in great enough demand to justify a regular production run in any real quantity.

The first step in Typhoon's manufacture of packaged units is the receiving of cold rolled furniture steel—20 to 11 gauge—and the storing of it in large quantities, to enable the firm to make long runs of any particular model and thereby save setup time on press brakes, shears, and other large machines throughout the plant.

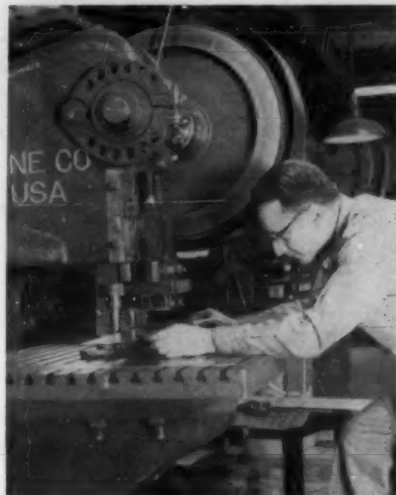
The huge trucks which deliver the stacks of uncut sheet metal are backed right down the ramp to the lower level receiving bay. There a large overhead crane picks up the pre-bundled sheet metal stock, and swings it down to a waiting hand truck, which is then wheeled into the building in position for the indoor crane to pick up the load. Inside, the crane moves on a ceiling track to drop the load of sheet metal near the door in the stockpile area.

As sheet metal is required for cabinet manufacture, it is moved from this area to a 10-ft. power shear, which cuts the large sheets to size. Typhoon production calls for thicknesses of 11, 14, and 20-

gauge steel for various parts of the cabinet.

A special method devised by Bob Graziano enables the shear operators to square the sheets and cut them to size in a single handling. Stocks of the squared sheets are then stored on dollies to be moved along to the press brakes.

Drawing upon this stock, the press brakes fabricate wrap-around sections for cabinets, or separate sides, back, and front for other models, bases, drip pans, blower



SHEET METAL DROP-OFFS from power shears and press brakes are sent to the punch press department, where they are formed into brackets, braces, and various small parts. In this precision operation, workman is punching louver supports for Typhoon SW unit.



IN WELDING DEPARTMENT, metal parts are joined into complete cabinet. Electric welding, jig welding, and gas welding are used. Gun welding equipment (shown) enables operator to put strong welds in corners, on flanges and curved surfaces, and in other difficult-to-get-at places.



IN THE ARC-WELDING DEPARTMENT, Typhoon cabinets are reinforced with extra-strong welds at critical spots. Made of heavy furniture steel, cabinets are designed and constructed to insure long life and rigidity.

To another customer...

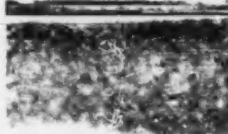
KRAMER
UNICON
Congratulates
TYPHOON

TYPHOON has eliminated
condensing water problems
by using the KRAMER UNICON,
the industry's finest remote
air-cooled condenser.



KRAMER TRENTON CO. • Trenton 5, N.J.

ALL METAL PARTS to be painted are treated in this large vapor degreasing tank, to remove all traces of oil, dirt, and grease before painting.



parts, and other parts. After being punched, notched, and extruded, the sheets are formed to their final shape.

A template system is used on the press brakes for most gang operations, to assure uniformity at all times, while a system of jumping gauges and the simultaneous use of a number of dies on the brakes often make it possible to completely fabricate a sheet in a single handling.

Drop-offs are sent to the punch press department, where they are fabricated into other cabinet components—brackets, braces, and various small parts. Louvers are also formed on the punch press.

Start Trip on Dollies

All these various parts flow together again at the spot welding department, where they are jig-welded into the complete cabinet. The cabinets are then placed on the dollies which will carry them through the entire plant, and are moved to the arc-welding department. There, extra-strong welds are put in critical spots to insure long life and rigidity.

The next step is the grinding department, where all welds are smoothed down in preparation for painting.

The final steps in the completion of the cabinet—painting and baking—are preceded by a de-greasing process, in which plenums, cabinets, and various parts are lowered by a ½-ton electric hoist into a liquid solvent, vaporized at 290° F., which removes all grease and oil from metal surfaces. Usually this process takes about five minutes per piece; however, some parts, too large for the de-greasing tank, must be washed by rubber hoses using the solvent in liquid form.

Safety Measures Taken

The de-greasing tank is safety-controlled—if the temperature of the vapor rises above a certain level, or the liquid level falls off, the equipment will kick out. A water jacket—cold tap water, run through pipes around the interior of the walls of the tank, 2 ft. below the rim—cools the tank wall at that level, liquifying the vapor on contact, and causing it to run down to the bottom where it is revaporized.

The tank is cleaned approximately once every two weeks. The grease deposit, or sludge, is refined, and the solvent recovered and put to use again. Additional solvent for the tank is required about every two days, and the normal amount added is three drums, or about 1 ton of solvent.

As an additional safety factor, the temperature in the painting department is kept at 60°, to depress fumes from the de-greaser.

The cabinets emerge from the degreaser dry, and are placed on their dollies again and moved to the lacquer booths, where their interiors are given coats of gray or blue lacquer. From the lacquer booth, they join other parts recently de-greased, at the finishing booths.

There all parts are given wrinkle, hammertone, or outdoor enamel finishes, depending on the model being run. Two coats are given every part, about three minutes apart, taking one stroke vertical and one horizontal to assure complete coverage. Five 5-gal. pressure paint cans, for various colors, are in constant use, and the paint is sprayed at a pressure of 50 lbs. at gun.

While wet, the cabinets and parts are placed in baking ovens and

(Continued on Page 16)

TYPHOON AIR CONDITIONING CO., INC.



505 CARROLL STREET
BROOKLYN 15, N. Y.
TELEPHONE: ULSTER 8-0800

October 28, 1954

Mr. James Loftus
Universal Carloading & Distributing Co., Inc.
345 Hudson Street
New York 14, N.Y.

Dear Jim:

It was nice to get your thoughtful note congratulating us on our recent move to the new Typhoon plant, here on Carroll Street.

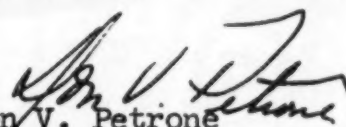
I think you know by now that without the consistent and courteous cooperation we have received through the years from you, Jim De Santos, and others in your organization, we would not have been able to achieve the success which has brought us to this new and much larger factory.

One thing never changes and that is the frenzied tempo of our air conditioning season; during certain months every order we get is a rush order, and I know you must have sometimes wondered how we could expect so much in the way of special service from you.

But you and your organization have come through every time for us, Jim, and I have no hesitation in telling you that we consider your help to have been one of the major factors in the story of Typhoon's success.

Very truly yours,

TYPHOON AIR CONDITIONING CO., INC.


Don V. Petrone
President

PTW:11

many thanks, Typhoon...

and very best wishes for continued success and progress.

Your letter reminds us of the famous words, "the difficult we do right away, the impossible takes a little longer." That's what Universal always aims to do, get the freight through — where you want it — when you want it delivered!

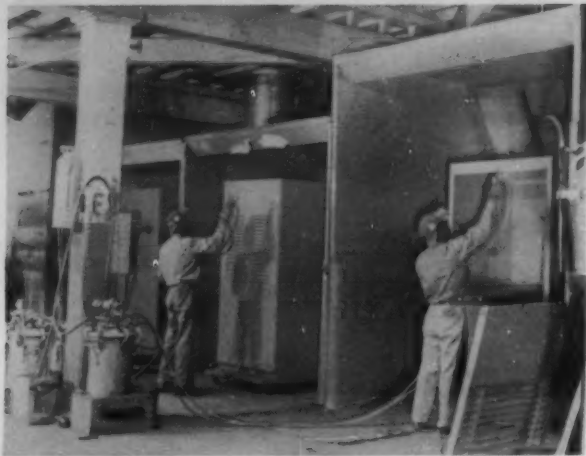
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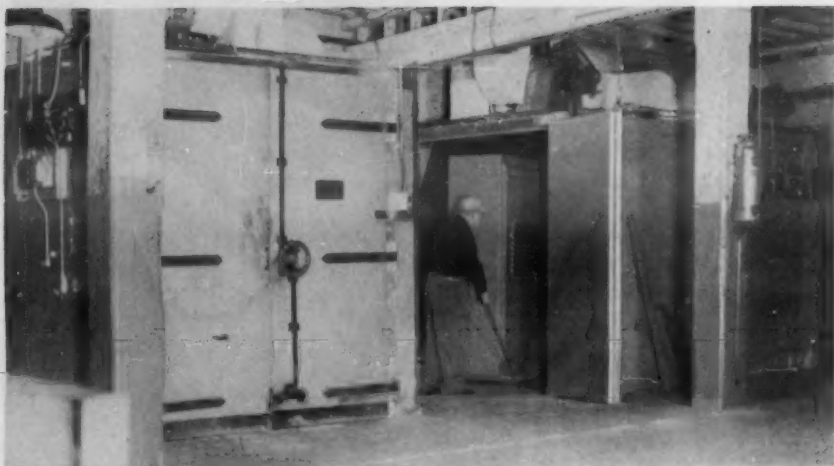
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Painting, Baking, Insulating Come Next--



IN LACQUER BOOTH (foreground), the interior of Typhoon 10-ton packaged unit cabinet is receiving coat of blue lacquer. Workman at finishing booth is giving 5-ton cabinet a second coat of gray hammertone, to assure complete coverage and uniform finish.



IN CHARGE OF TYPHOON'S painting, baking, and insulating operations, Edward Beck has been with the company since its formation in 1909. Here, he okays 10-ton packaged unit cabinet for baking. In giant oven, cabinets will be baked for one-half hour, at 275° F.



IN INSULATION DEPARTMENT, glass fiber thermal and acoustical insulation is applied to cabinet interiors by a glass-to-metal bonding process, and waterproof paint is applied to drip pans to prevent rusting.

(Continued from Page 14)

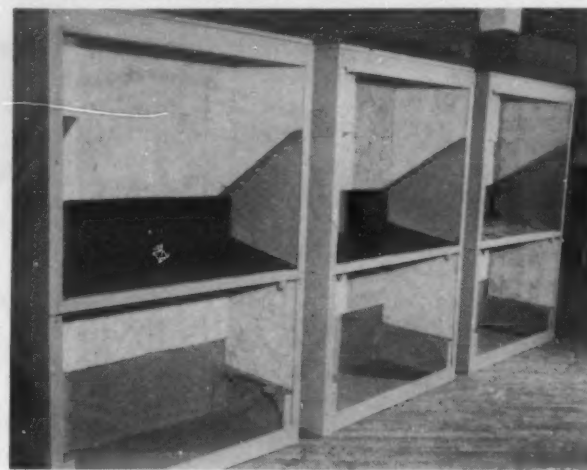
baked for a half hour at 275° F. As many as 10 cabinets can be baked simultaneously.

Next the cabinets are rolled to the insulation department. There, thermal and acoustical insulation, pre-cut to size, is applied to the cabinet interiors by a polybonding glass-to-metal process, and waterproof paint (similar to automobile undercoating) is applied to the drip pans to prevent rusting. Typhoon abandoned the use of felt as insulation in 1950, changing to glass fiber because of the latter's superior insulating qualities.

The finished cabinets then start their trip through the Typhoon factory, via the unusual dolly assembly line.

Meanwhile, while the cabinets have been in the process of manufacture, angle iron and bar stock have been chopped into various lengths. After punching, slotting, and notching, in a punch press operation, they are stockpiled in the welding department, and finally formed into the single, rigid frame which supports motor-compressor and condenser inside the Typhoon cabinet.

One unusual feature of these frames is that they are adaptable for either hermetic or open-type compressors. This permits Typhoon to fabricate and stock only one type of compressor frame. The frame is constructed to support an



THESE 10-TON CABINETS, painted and insulated, are now ready to have their "guts" installed, via the unusual dolly assembly line. Steel shelves at bottoms of cabinets will support Typhoon's special reversible cradle, which accommodates either open compressor or sealed motor-compressor. Note that cabinets are two-piece, permitting remote installation of the high side.

ONE OF MANY air conditioning components which Typhoon manufactures itself, these condensers are constructed entirely of heavy copper to insure long life and trouble-free performance. Typhoon's own high-capacity finned tubing permits unusual compactness without loss of efficiency.



open-type compressor assembly when turned one way; and when reversed, it is fitted to receive a hermetic compressor.

Besides the simplification of stockpiling, this arrangement also

makes it possible to pull a unit from the assembly line and substitute one type of compressor for the other with little trouble.

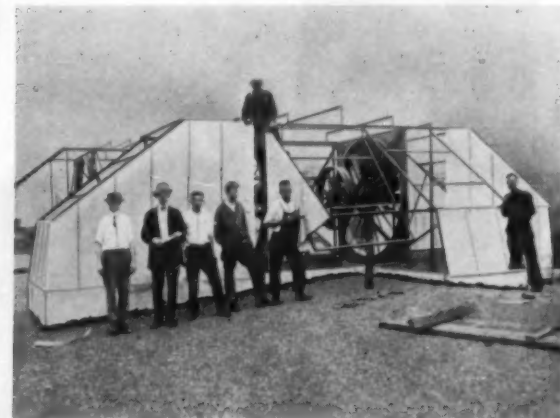
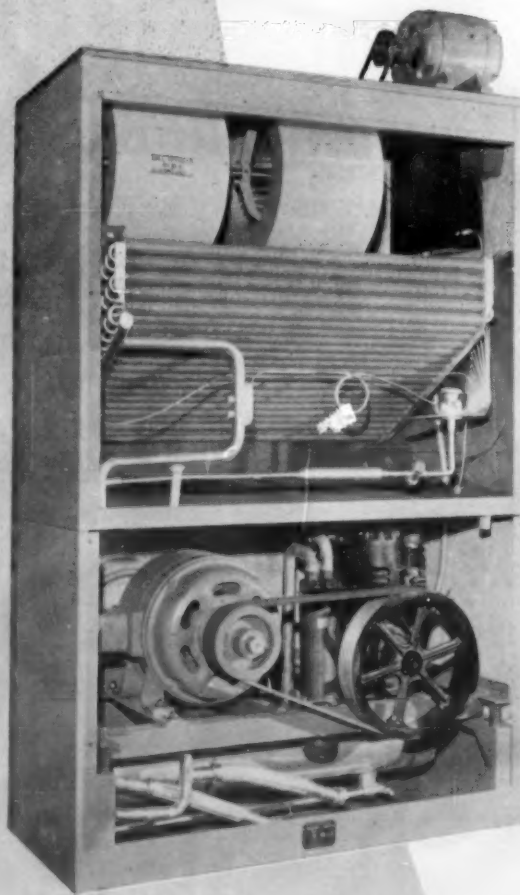
The use of copper is especially

(Continued on next page)

More POWER
to TYPHOON

TYPHOON'S FOR

When performance standards dictate the best—specify Imperial Motors. This Model 164 Typhoon Air Conditioning Unit incorporates two Imperial motors; one for the fan and one for the compressor. These motors were designed for quiet, smooth operation in keeping with the rigid requirements of Typhoon quality standards. Motors such as these are designed for the job. Typhoon knows that "almost right" isn't enough for top performance and trouble-free motor life.



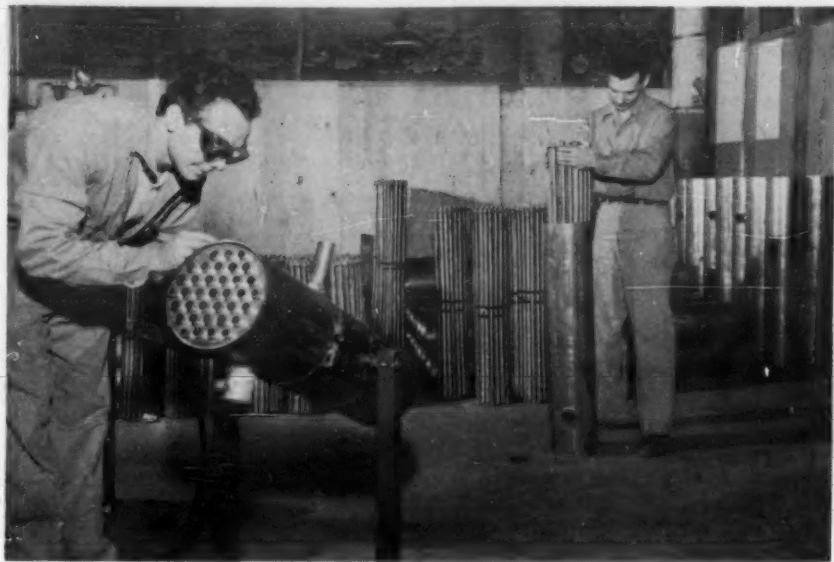
Twenty-five years ago Typhoon made this installation atop the roof of a large metropolitan building. Imperial special motor experience goes back to 1889—your assurance of background and "know-how" for almost any motor problem. This illustration is from an early catalog of the Typhoon Company. Compare it with the compact, well-designed equipment at right or left.

Congratulations to "TYPHOON" occasioned by their moving into their new home. The entire staff at "ACE" is proud to be a part of this.



ACE SPRING MFG. CO., INC.
NEW YORK 12, NEW YORK

SOLE SUPPLIER OF SPRINGS TO
TYPHOON AIR CONDITIONING CO., INC.

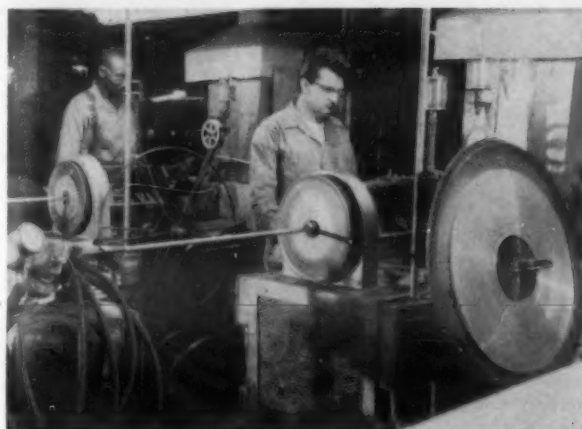


TYPHOON FINNED TUBING, silver-soldered to precision-punched endplates, is inserted in copper condenser shell (right). Then, all connections are silver-soldered in place (left), forming a sealed vessel, and condenser is ready to be tested.



IN A WATER TANK, condensers are rough-tested at 300 lbs. dry air pressure, to make certain that no leaks exist. Evaporator coils are tested in the same manner. Though these components will probably encounter no more than 250 p.s.i. in normal usage, they will receive even more rigid tests after unit is fully assembled.

DISTRIBUTION ASSEMBLY AREA, where distribution circuits—or "spiders"—and expansion valves are readied for assembly with coils.



SPECIALLY DESIGNED finned tubing machines, which produce finned tubing for condensers and evaporator coils at the rate of about 10 ft. per minute, were developed by Typhoon engineers. Metal strip is applied to copper tubing to form fins. Completed tubing is cut to various lengths and stockpiled in coil and condenser assembly area.

Produce Own Components Needing Special Care--

(Continued from preceding page) important to the manufacture of Typhoon packaged air conditioners. Soon after the company began producing packaged units, Typhoon's management decided to take over the manufacture of those components which are particularly critical in any air conditioning system

—the condensers, cooling coils, receivers, coil headers, heat exchangers, strainers, vibration eliminators, and refrigerant lines.

Because of its heat transfer properties, its resistance to corrosion, and its general workability, copper plays a vital role in each of these items, and Typhoon has

always tried to use copper wherever possible, despite its relatively higher cost.

An average of 90-day load time of raw copper is stocked at all times in the copper department, from 1/2 in. to 8-in. hard, soft, and semi-soft copper tubing, and various weights of sheet copper. Tub-

ing is stockpiled in bins, in standard 20-ft. lengths.

This department produces all coil headers for all units, all condenser headers, all bends, all spray headers, all condenser shells and plates, all sweat couplings, and plugs. In addition, it produces heat exchangers for the Typhoon 7 1/2, 10, 15, and 20-ton units, noise mufflers for evaporative condensers, cooling tower kits, strainers for 15 and 20-ton units, and assorted vibration eliminators.

Two tube-bending machines, designed and constructed by Typhoon, produce all large bends, handling any size tubing up to 2 1/2 in. Another Typhoon-designed machine produces return bends. Punch presses together with drill presses and a variety of copper saws complete the equipment that enables this department to completely fabricate a copper component before sending it on to another department.

A large quantity of copper tubing is used in Typhoon's fin tubing department, where standard 20-ft. lengths of tube are finned and tinned and cut to the proper length for cooling and heating coils, condensers, and heat exchangers.

One at a time, the copper tubes are loaded onto the feeding racks of Typhoon's three specially designed finned tubing machines, and one end inserted in a machine.



AFTER FINNED TUBING is inserted in endplates of 14 gauge galvanized steel, skilled workmen silver-solder return bends in place.

As the machine operates, the tube is drawn in at about 800 r.p.m., past the driving wheels and ironing rollers to the point where metal strip is applied to form the fins, at the rate of 8 fins per inch.

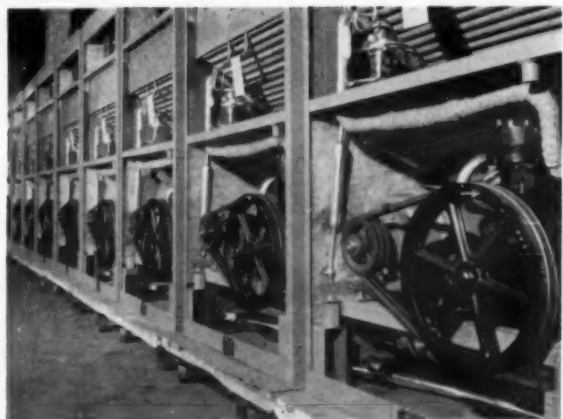
The strip, either copper or aluminum, is loaded in reels on a shaft to the rear of the machine, and automatically fed through various rollers and wheels to the tube. The copper is stockpiled in reels of approximately 100 lbs., while aluminum strip, in a coil of about the same quantity, weighs about 23 lbs.

After the fin has been bonded to the tube, flux is applied, and the tube goes through a solder spray.

(Continued on next page)

MAJOR MOTOR SUPPLIER MORE THAN 25 YEARS!

We're proud to have been associated with Typhoon's growth through more than a quarter of a century. We have kept pace with the exacting requirements of the air conditioning field. Imperial engineers have maintained a constant research program to provide quiet operation, proper torques and high efficiencies. Service has been our watchword—to supply the right motor when it is needed. If you have a quality or service problem, send it to Imperial. Your request will receive immediate personal attention.



Here's a line of Typhoon Air Conditioning units to delight the eye of any dealer or user. Designed right, built for long hard service, incorporating the best components available. Why not call Imperial Electric when you have a motor problem and find out how the right motor for each job can improve the service life of your product, too.

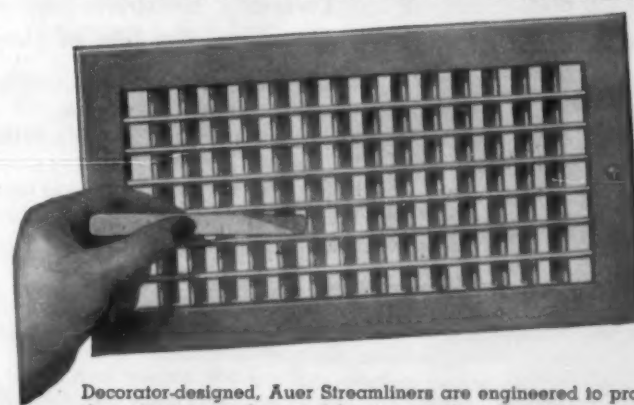
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Auer "Streamliners" help— TYPHOON DELIVER COMFORT!



Decorator-designed, Auer Streamliners are engineered to provide the utmost in cooling and heating comfort. Positive air control by means of adjustable louvers and bars, as shown, provides a gentle flow of air, eliminating uncomfortable blasts of air that often create discomfort with forced air heating or cooling equipment.

The Auer Register Company manufactures a complete line of registers and grilles. The Streamliner Series is made up of single, multiple and opposed blade louver registers to fill any heating or cooling requirement.

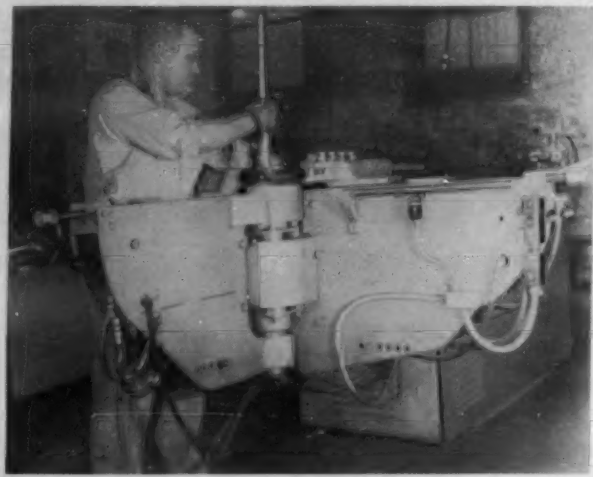
- "Streamliner" Registers and Grilles
- "Perfusaire" Perimeter Diffusers
- "DRP" Floor Perimeter Diffusers
- Gravity and Air Conditioning Registers
- Ornamental Perforated Grilles
- Clothes Chute Doors

Write for complete information and specifications



THE AUER REGISTER COMPANY

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ONE OF TWO TUBE-BENDING MACHINES, designed and constructed by Typhoon for the fabrication of all large copper bends used in Typhoon packaged units. Refrigerant lines, water lines, and headers are produced on this machine, which will handle any size tubing up to 2½ in.



TWO 25-TON packaged units, and one 15-ton unit, in the process of final assembly in the new production facilities in Brooklyn.



FINAL STAGES of assembly on four Typhoon upright SW units. Occupying only about 5 sq. ft. of floor space, these year-round units are representative of the compact design now found in packaged air conditioning.

Use of Copper--

(Continued from preceding page)

When there are about 5 ft. of tubing remaining to be finned, the machine is stopped and the end of a second tube is temporarily connected to the end of the unfinished tube. Then the remainder of the first tube is run through the machine until it rests entirely on the "finished" rack, at which point the two tubes are disconnected and the second tube continues its passage through the machine. This operation is necessary to supply drive to the first tube once it has passed the driving wheels and is being processed in the interior of the machine.

The finished tube is moved over a rail system to the saw table, where it is cut to the various lengths required. Then the tubes are stripped and polished—about ¾ in. of fin is removed from each end of the tube, and the ends are polished to remove all traces of solder. Now the tubes are ready to be moved on skids to the coil department, which performs basically an assembly operation.

The finned tubing is inserted in end plates of 14-gauge galvanized steel, gang-punched with special

dies made by Typhoon and formed on the press brakes. While the return bends are silver soldered in place, dry nitrogen is run through the coils to prevent oxidation on the inside of the bends.

In the meantime, the distribution circuits, or spiders, have been formed on a special jig. Now the completely assembled coil—finned tubing, end plates, return bends, spiders, and expansion valve—is removed to a test area, where it is tested under water with 300 lbs. dry air pressure, to make certain that there are no leaks.

After testing, the coil openings are sealed with plastic caps to prevent any moisture from getting in, and taken to the unit assembly area.

The finned tube assembly for Typhoon condensers is inserted in an all-copper shell made of 6 in. or 8-in. heavy-wall copper pipe, the header is attached, and end plates of 96-oz. copper plate are silver soldered in place. Then the condenser is tested at 300 lbs. dry air pressure to check for leakage, then sealed with plastic caps, and moved to the assembly area.

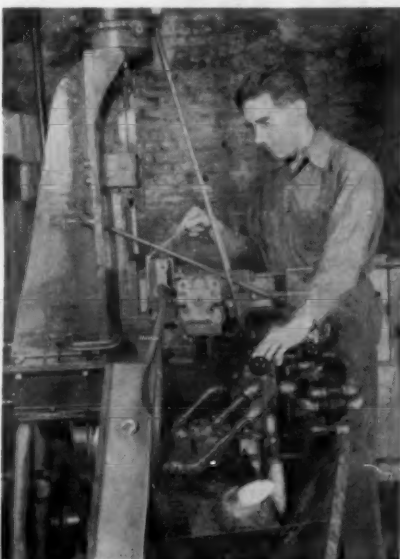
Though coils and condensers will seldom be subjected to more than 250 p.s.i. in normal usage, these are built to withstand pressures at least five times as great.

Final Assembly of Units

In Typhoon's extensive assembly area are stockpiled all the components required for the various models of Typhoon packaged air conditioning equipment.

The first step in assembly is the receiving of finished cabinets from the paint department. The cabinet doors are immediately removed and stored on special dollies, which, when filled, are taken to the finishing stand where they remain until the units catch up to them. Each door is tagged for its particular cabinet, since the paint department has carefully matched door to cabinet for fit, color, and texture of finish.

The empty cabinets are lined up on either side of a central assembly aisle which can accommodate as many as 14 units at a time.



RETURN BEND MACHINE, designed and constructed by Typhoon, can produce return bends of 9/16 in. radius. Sharp radius is an important factor in building compact coils and condensers.

In a subassembly operation, the electrical department has assembled and wired the starters and various other electrical parts, including thermostats and off-on switches. In addition, the motors have been wired for installation.

While the electrician installs the starters, the condenser man mounts the condenser on the angle-iron cradle which will support condenser, motor, and compressor inside the cabinet. Two heavy steel U-straps serve as this mounting.

Meanwhile, the blower man has wired the blower motor, attached it to the blower by means of steel brackets, and is in the process of installing the blower in unit.

When this operation is concluded, the condenser man installs the condenser mounted in its cradle, which is floated on four heavy helical springs. He then

hoists the compressor into the unit and bolts it securely.

Now the coil man installs the cooling coils, fastening them to shelves provided, and is ready to connect condenser to compressor and coil to compressor. Having previously prepared the all-copper liquid line, the suction line, the hot gas line, and the proper vibration eliminators for installation, he now makes the necessary connections, and the unit is ready for the installation of the motor.

Once it is aligned with the compressor, the motor is fastened to its saddle with bolts, and the belts put on. The safing man now installs sheet metal safing in front of the coil, attaches a thermostatic bulb from the safing to the thermostat, and another thermostatic bulb from the expansion valve to the suction line outlet of the coil. The completed unit is then ready for testing.

(Concluded on next page)

Handworking Methods Still Used for Special Jobs



HANDWORKING BENCH, where unusual or off-standard components required for special jobs are fabricated by hand. Many parts for pilot models are produced by this department, which can handle anything from the smallest bracket to a complete custom coil assembly.

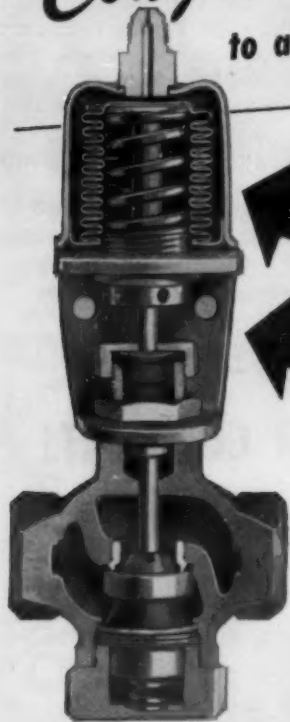
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to all our friends at

TYPHOON
AIR CONDITIONING

TWO BIG REASONS

for insisting on
Marsh-Electrimatic
Regulators

TWO-PLY BELLOWS
NEOPRENE BOOT



Two-ply bellows has more than twice the life of single-ply

Break-down tests prove that the Marsh-Electrimatic two-ply bellows has 2½ times the life of an equivalent one-ply bellows. This is because a single ply bellows must be made of heavier gauge metal... and naturally the heavier metal rapidly breaks down under the fatigue of flexing.

Boot eliminates packing — friction

At one time the best way to eliminate packing was with a metal bellows, but this Neoprene boot has all the advantages of a bellows plus ten times its life. We have repeatedly proven this, too... by cycling the boot, without failure, under actual operating conditions ten

times as long as we could cycle the best metal bellows.

These are just two of the many features that make the Marsh-Electrimatic last longer and function better. They are typical of plus values found in the entire Marsh-Electrimatic line. Write us or see your wholesaler.

MARSH INSTRUMENT CO. Sales affiliate of Jos. P. Marsh Corporation, Dept. D, Skokie, Ill.

MARSH-Electrimatic



Add-On System Serves 18-Room Maryland Motel

WALDORF, Md.—An interesting example of "mixed" residential and commercial application of package air conditioning is to be found in the Heidelberg motel here, where two standard Typhoon "Convert-to-Cool" systems have been combined with two existing forced warm air furnaces, to furnish year-round air conditioning for the motel.

The motel consists of 18 room units, located on either side of the office in two groups of nine. Two air-cooled condensing units are located behind the office, one based on a concrete slab and the other placed on top of the first.

Connected to the cooling coils mounted on the furnaces, which are located in the office structure, each Convert-to-Cool unit supplies a group of nine motel units with ½ ton of cooling per motel unit.

Owner of the motel reports that even on hot, humid days, where temperatures have ranged over 100° F., that the cooling effect proved satisfactory.

Congratulations to TYPHOON!!!

AMINCO OIL SEPARATORS

WITH AUTOMATIC OIL RETURN

½ H.P. TO 120 TONS



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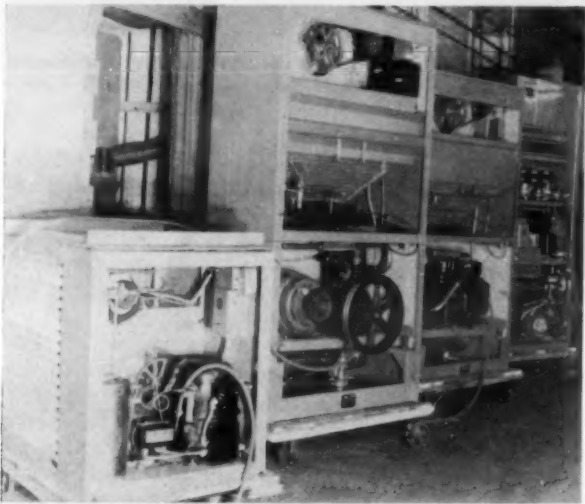
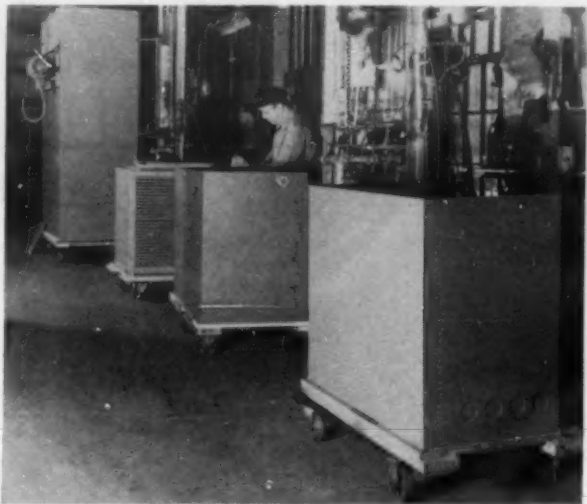
CONSTANT PRESSURE VALVES
SNAP ACTION VALVES
HIGH SIDE FLOATS
WATER VALVES
CHECK VALVES, ETC.

WRITE FOR CATALOG & LITERATURE
BUY FROM YOUR WHOLESALER

AMINCO REFRIGERATION PRODUCTS CO.

DETROIT 3, MICHIGAN

EACH UNIT MUST PASS rigorous operating test under supervision of expert technicians, before leaving factory. Here, two 10-ton high sides, an air-cooled condenser for "Convert-to-Cool," and a 25-ton packaged unit are being thoroughly dehydrated in preparation for high-pressure leakage test.



UNITS HAVE BEEN CHARGED with refrigerant, backed up with high-pressure air, are undergoing leakage test. Unit in center of picture is custom-built 5-ton unit in 7½-ton cabinet—larger cabinet was required to accommodate "face-control" coil, which will provide precision humidity control under abnormal conditions.



ON THE DRESSING LINE, completed and tested Typhoon units receive last minute attention before crating and shipping. Units shown above are open type, powered by motors supplied by Imperial Electric. At this stage, minor flaws, such as nicks and scratches, are erased, and all copper parts are given a coat of aluminum paint. Then units are wrapped in heavy paper and strips of felt padding, and sturdy crates of paper-covered hardwood, with a liberal amount of cleating, are erected around them. The wooden bases which have carried the units through the factory on their individual dollies now form the bottoms of the crates. Special care is devoted to the protection of the unit en route, and Typhoon has designed crates scientifically around each model. In these rugged, waterproof crates, units are moved either to storage areas or to the shipping bay.

Test Line Readies Units for Field

(Concluded from preceding page)

Every unit that leaves the Typhoon factory must go through a thorough testing procedure to insure its satisfactory performance in the field. Trained test engineers with many years of experience will not pass any unit that does not come up to Typhoon quality.

The first step is **Dehydration**:

Not an actual test, this is the first step in getting the unit ready for testing. The unit is connected to the drying stand, and bone-dry air from a Pittsburgh Lectrodryer is circulated through the entire system to pick up any moisture that may be present. Before removing the unit for testing, the outlet air is checked with a dew-point meter to make certain that every trace of moisture has been eliminated.

The next step is the **Rough Leakage Test**:

At this point, the unit is charged with refrigerant gas, backed up with high-pressure air, and the entire unit is checked for leaks. If

any major leaks are found, they are remedied before the unit moves on to the test stands where a final and more exhaustive leak check is made again. The careful pre-assembly testing given all component parts such as coils, condensers, and heat exchangers, make any leakage an unusual occurrence at this point.

Finally, the unit is subjected to **The Running Test**:

At the test stand, the unit is given its proper amount of refrigerant charge, and another leakage test made. Then the unit is hooked up, just as it would be in the field, and given a thorough running test, while all aspects of its performance are carefully checked.

The completed and tested unit is moved to the finishing stand for minor touching up, after which it is wrapped in corrugated paper and encased in a sturdy wooden crate for shipping. The crate is built up from a heavy wooden "skid," to which the unit is bolted securely.

Lau Congratulates TYPHOON



TYPHOON standard packaged air conditioning units, each with Lau Blower installed. Units in various stages of completion. Three units at right are open-type; three units at left are hermetic-type. Photo courtesy Typhoon Air Conditioning Co., Inc., Brooklyn, N. Y.



LEADERS RELY ON LAU for advanced design and quality engineering. This Lau Belt-Driven Blower Assembly is the leader in its field. It is far easier to install, lower in final installed cost, superior in performance, and possesses longer trouble-free operating life.



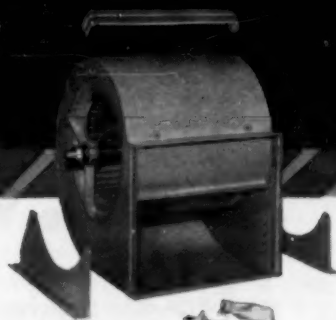
THE COMPLETE LAU LINE FOR 1955 IS ILLUSTRATED BELOW

LEADERS RELY ON LAU

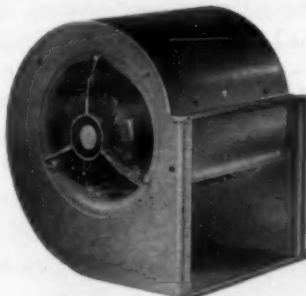
FOR THE FINEST
IN BLOWERS,
BLOWER PARTS,
EXHAUST FANS,
AND COMPONENTS
FOR EVERY
AIR-HANDLING
REQUIREMENT



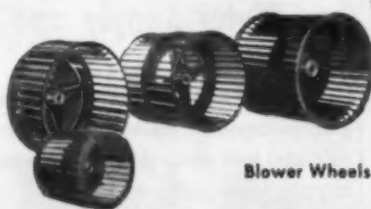
Belt Drive Blowers



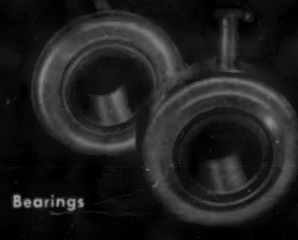
Econo-Pak Blowers



Direct Drive Blowers



Blower Wheels



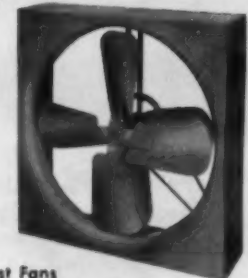
Bearings



Pillow Blocks



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Theater Use Sparked Rise of Packaged Units--

(Continued from Page 11)

packaged air conditioning units of greater capacity than the then standard five ton size could be successfully applied to theaters and to commercial installations as well.

First came the application of the 7½-ton unit, which had been first introduced in 1946. One of the earliest of these 7½-hp. packaged units was installed to cool the movie room of the White House in Washington in about 1947.

Then, in 1948, Typhoon brought out the 10-ton packaged unit, and immediately increased its market for packaged air conditioning in theaters. Previously, any theater requiring as much as 60 or 80 tons of refrigeration was considered too large for packaged air conditioning, but now the compact packaged units began to challenge central plant systems even in theaters with seating capacities of over 1,000.

Cost of Central System Deemed Prohibitive

An example of an early installation of 10-ton packaged units is the Rivoli Theater in Rutherford, N. J. This theater had been surveyed by several air conditioning firms offering central plant equipment, and the management of the theater considered the cost prohibitive.

Then came an estimate for eight 10-ton packaged Typhoon units representing an over-all installed saving of nearly 30%. The result is that the Rivoli Theater is still successfully cooled by packaged units, and many other theaters soon followed suit.

An interesting sidelight is to be found in Typhoon's advertising in theater trade magazines during that period. The first ads featured "packaged air conditioning units for the small theater." Later ads mentioned a seating capacity "up to 800." By 1948, Typhoon proudly offered to air condition theaters of any size!

Perhaps the greatest boost for packaged air conditioning in theaters at about that time was the installation in 1949 of 500 tons of Typhoon packaged air conditioning equipment in what is claimed to be the largest indoor theater in the world—the Teatro Blanquita, in Havana, Cuba. With a seating capacity of 6,700, this theater exceeds in capacity, if not in physical size, the famous Radio City Music Hall in New York City.

Engineer Not Needed for Packaged Unit Operation

Among the selling points used by Typhoon salesmen during this period was the fact that in many places in the United States a "stationary engineer" is required to be in constant attendance for a large central plant system while a group of small packaged units does not have to be so supervised.

"Packaged air conditioners," says Don Petrone, "blowing a stream of cool air directly over patrons' heads, escaped the criticism of 'floor chilling' which marked the use of floor outlets or returns. This type of air distribution also eliminated the cooling of 'waste space' near the ceiling; many central plant systems with outlets in the ceiling had to produce greater tonnage than was required of packaged systems.

"Some motion picture theaters even had to shut down in the summer despite the fact that they were equipped with central plant air conditioning, simply because the inefficiency of these central systems made them too expensive to operate. Another potent argument was that package units offered the advantage of zone control whereby each unit was governed by the area it cooled.

"Thus the individual thermostat on a unit in an unoccupied area of the theater would cause the unit to cycle less often, while in a crowded section the reverse would be true. This was a decided advantage over the centrally located thermostats used for the remote jobs.

Low Installation Costs

"When the theater manager added to the above points the fact that installation required relatively little construction cost and a minimum amount of ductwork, and that their initial cost and operating cost were considerably lower, he was quick to overlook the so-called disadvantage of having packaged units right in the auditorium."

In about 1951, it became apparent that the theater industry was not going to continue to support air conditioning as strongly as in the past. The growth of television and some other factors produced a situation which caused a revision of thinking in the theater field, and orders for air conditioning began to fall off. Today, there are strong indications that theaters again offer a healthy market for air conditioning—but in 1951, Typhoon was forced to seek another field of specialization.

One factor which made the bridge relatively painless was the steady growth of commercial air conditioning. Drugstores and barber shops, variety stores, and clothing shops were beginning to clamor for air conditioning. Television studios also provided a good deal of business, and the company



MEAT-CUTTING ROOMS in retail food supermarkets have become a new market for packaged air conditioning units in recent years. Such rooms demand temperatures that are low enough to prevent any start of food spoilage, but yet not too cold to cause extreme conditions of discomfort for the workers, and package units can offer the desired controlled conditions.

landed several large contracts for this type of work.

But the greatest new market for air conditioning was the fast-growing supermarket field. The revolution in food marketing had become pretty well stabilized, and now the big chains were aggressively competing for business. Beginning with the Star Market chain in New England, Typhoon soon spread its supermarket installations all over the country, and now many of the large local chains use packaged equipment for many of the same reasons that proved so convincing to theater managers.

The company made a studied effort, however, not to become too dependent on any one type of business. Today, only about a third of Typhoon's production goes to the supermarket field.

One product feature which has proved even more attractive to the supermarket field is the fact that Typhoon units can also be easily split in half to make a variety of types of installations, all calculated to conserve the income-producing floor space in supermarkets. Several Grand Union stores near New York, for example, employ

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Where and how to sell heat-pump air conditioning

Levittown, Pa., Shopping Center Shows Advantages of These Year-Round Heating and Cooling Systems

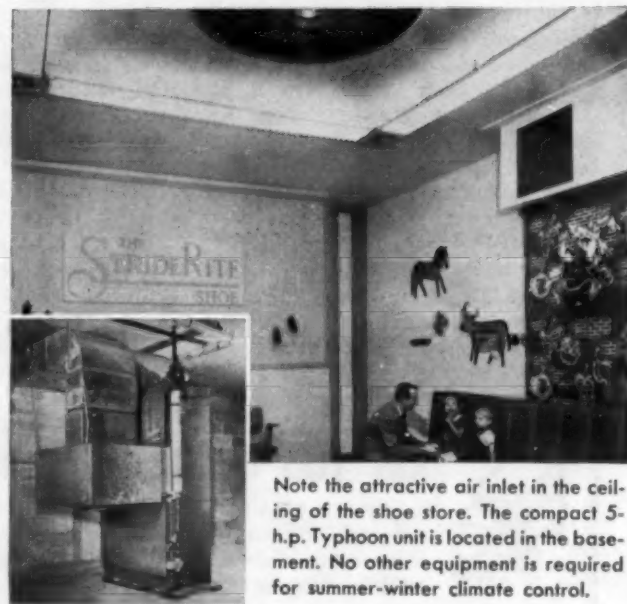
Heat pumps offer your customers many important advantages in addition to over-all cost-saving features. During in-between seasons, commercial locations—like the Levittown Shopping Center—often need an immediate change from cooling to heating several times a day. Heat pumps take care of this easily. And since they operate on electricity only, heat pumps banish ugly smokestacks and cut out smoke and soot problems. There's also a saving in space due to eliminating boilers and fuel tanks. Of course, heat pumps are practical only under certain conditions.

Important to Calculate Water Supply and Power Rates

The water supply available is important, because heat-pump capacity calls for 2 gallons of cooling water per minute per ton. At Levittown, 3 wells were sunk to supply 1800 gallons of water a minute for air conditioning use.

Electrical rates depend on the locality, and your utility company should be consulted. Naturally, larger installations use more power and earn a lower rate. Your local utility company can help you with this and many other considerations.

You also must determine whether there's a favorable heat balance between summer and winter. Although the contractor concluded that the seasonal heat balance in the Levittown area is unfavorable for residential appli-



Note the attractive air inlet in the ceiling of the shoe store. The compact 5-h.p. Typhoon unit is located in the basement. No other equipment is required for summer-winter climate control.

cation, heat pumps are entirely practical in the Shopping Center's commercial buildings.

Both Packaged and Central Plant Heat-Pump Systems Used

Packaged heat pumps are used in many retail stores in the Levittown Shopping Center. These units are of the water-to-air type... most of them manufactured by the

PENN Quality TUBING

USED IN THE COOLING and HEATING COILS

by



Penn quality tubing meets the rigid standards specified by refrigeration and air conditioning manufacturers and keeps rejections at a very minimum. Standardizing on PENN tubing as a component part results in many plus values. Helpful service from the PENN engineering staff and sales representatives and prompt delivery from our plant and wholesalers make PENN a profitable connection. We, at PENN, are proud to be a part of TYPHOON's tremendous growth.



QUALITY TUBING HAS A "PENN NAME"

PENN BRASS & COPPER COMPANY
ERIE • PENNSYLVANIA • TELEPHONE 3-1164

Expanding Market Brings Larger Packaged Units --

(Concluded from preceding page)
the suspended low-side method of application, with the compressor sections on the roof or in the basement.

The Furr Food Stores in Texas have also made use of these units as free-standing packages, as split units without ducts, and even as remote systems.

30-Ton Unit To Be Unveiled

When the popularity of the 10-ton unit became established, Typhoon, feeling that there was a valid market for the larger sizes, set out to design 15 and 20-ton machines as integral units. In 1950 Typhoon brought out its first packaged units with capacities of 15 and 20 tons, then in 1953 the firm produced the first 25-ton unit.

At the Heating & Ventilating Exposition to be held in Philadelphia this month, Typhoon will unveil a 30-ton unit.

Basically, the larger sizes are designed for remote installation; other advantages of packaged equipment, such as assembly and testing at the factory, and compact construction, still assure a market. But several supermarket chains, such as the Boenker's Bi-Rite in Cleveland and Furr Food Stores in Texas, have installed 20-hp. packaged air conditioners right



PACKAGED RESIDENTIAL units can find commercial applications under the right circumstances. In the Medical Arts Pharmacy in Winchester, Ky., a Typhoon S-W 5-ton year-round residential unit, installed by Max Miller, provides plenty of heating capacity in the winter, as well as comfort cooling in the summer.

on the supermarket floor, without ductwork, with complete success.

Supermarket Field

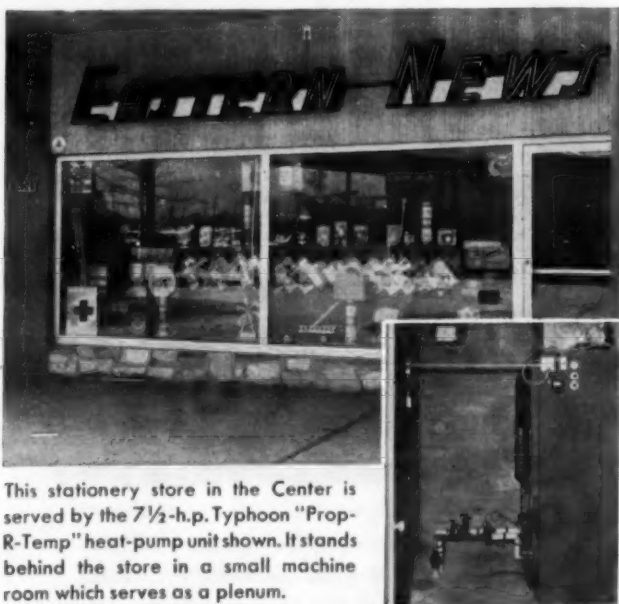
Today, while the company is still concentrating on supermarkets to a great extent—for example, a good deal of its advertis-

ing goes into supermarket trade magazines—the firm's other commercial business, especially in the new large suburban shopping centers, is also growing, and a rising market in the industrial field and in offices and showrooms is helping to diversify the market for package units.



Modern one-story architecture characterizes the Levittown Shopping Center, built by Tullytown Supply Corporation. Heat pumps make clean design lines possible by eliminating smokestacks and towers.

Typhoon Air Conditioning Company. The units were installed by the Tullytown Supply Corporation and are leased with the building space to tenants. Tullytown has supplied 100% air conditioning to stores in the Center by installing heat-pump units in some stores and standard air conditioning units in others. Carrier equipment



This stationery store in the Center is served by the 7½-hp. Typhoon "Prop-R-Temp" heat-pump unit shown. It stands behind the store in a small machine room which serves as a plenum.

is used for the central plant installation, and General Electric has also contributed some of the heat-pump equipment.

How Versatility of "Freon" Refrigerants Helps

Three different Du Pont "Freon" fluorinated hydrocarbon refrigerants are used to achieve the greatest possi-

ble space and unit efficiency. "Freon-22" (monochlorodifluoromethane) is used where possible, because it requires less cylinder displacement than "Freon-12" (dichlorodifluoromethane) and saves space. In some of the installations, "Freon-11" (trichloromonofluoromethane) serves best. But the important thing is that here—as in every installation—whatever the size or type of equipment, there's a "Freon" refrigerant that's ideal for the job.

In commercial buildings the safety of "Freon" refrigerants counts, too. They're nonflammable, nonexplosive, virtually nontoxic... meet building-code requirements everywhere. And the consistent, uniform quality of "Freon"—protected by rigid Du Pont controls—helps equipment deliver efficient service for a long time.

SEND FOR BOOKLET. Du Pont has prepared a booklet that can help you sell air conditioning installations to prospective customers in all fields. It's called "Guideposts to Better Air Conditioning Installations," and a free copy is yours for the asking. Write to E. I. du Pont de Nemours & Co. (Inc.), Room 11500 Nemours Bldg., Wilmington 98, Delaware.



FREON

SAFE REFRIGERANTS

"Freon" is Du Pont's registered trade-mark for its fluorinated hydrocarbon refrigerants



BETTER THINGS FOR BETTER LIVING... THROUGH CHEMISTRY

Contractors Get Advice on Hiring and Training Sales Managers, Salesmen

MIAMI BEACH, Fla.—Air conditioning contractors are missing the most important and profitable part of their market if the majority of their prospects, having already decided they want air conditioning, are calling them up and asking them to submit bids.

The market they are missing, declared Gregory Marburgh, Miami division manager for the Electrolux Corp., is among the prospects who have the desire to buy but who are putting it off because no one calls and asks them to buy.

The beautiful part about this market, Marburgh told the Refrigeration & Air Conditioning Contractors Association at its recent convention here, is that it is non-competitive. The salesman who taps it has no competition.

But to reach this market, he warned, it takes creative selling. The demand is there—if you will go out and create the market, he asserted.

Prospect Must Be Shown How He Will Benefit

Creative selling is required, he explained, because, in this market, where the prospect's first words are "I'm not interested," it does no good just to sell, you have to sell right. You have to show the prospect how he will benefit from air conditioning—benefit so much that he is willing to part with his money to get it.

"If air conditioning won't benefit him," Marburgh asserted, "you haven't made a sale and you won't collect."

Creative salesmen are not born, he advised, they are trained. It is up to the contractor to train them himself. "If you don't know how," he declared, "then hire someone who does know how and let him train your salesmen."

Marburgh told the contractors that when they hire such a manager, let him prove himself first. Don't give him a single lead, he said, and allow him 30 days to produce results. If he doesn't bring in new business for you in that time, he isn't your man. Get another one.

But once the contractor has such a sales manager and begins building a creative selling staff, there are some basic rules that he must follow if he is going to keep his men.

First of all, you are going to have to pay him more money, Marburgh said. Money is the chief incentive that will inspire this type of man to work hard to make a

sale. The more he makes, the harder he will work.

Next, there must be no house accounts. The salesman must get full credit for all the business that he develops. The minute you start withholding money from him and cut down his earning power, you have lost yourself a salesman.

And for the same reason, there can be no cutting of price on sales. If the salesman gets the prospect to the point of buying and then the prospect can go over his head and get a better price from the management, the salesman is likewise through.

Make sure that the salesman receives his money. When he has earned his commission, make sure he gets it. There can be none of this business where the house makes its full profit on a sale and if there is any loss it comes out of the salesman's pocket. If you make sure that the salesman makes money for himself, he will make money for you.

Then, when you have done all these things, demand results. Demand that he either produce sales or quit. If a man cannot keep up the pace and make money under this system, then you are doing him a favor to fire him.

Following his talk, Marburgh answered questions posed by individual contractors. Some of the questions asked and a summary of Marburgh's answers follow:

Where Can Salesmen Be Found?

Where do you find such salesmen?

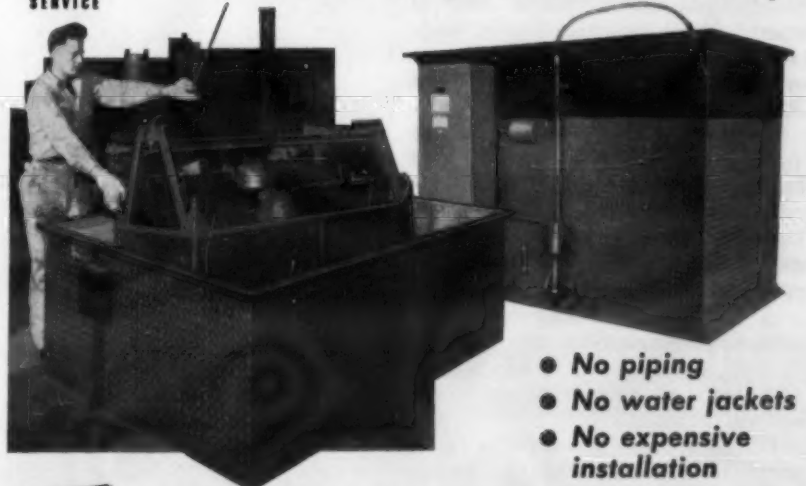
We advertise for them in the newspaper. Our advertisement runs every day. From those who come to us, we pick out the most likely candidates and train them. We would just as soon they did not have any previous sales experience. Then we can train them the way we want them trained. They don't know any better so they will do the things we tell them to do. Unlike the experienced salesmen, they are too dumb to know that the things we say won't work. So they do them and make money.

How long does it take to train a "green" salesman?

That all depends on the individual. Some catch on to the training right away and start making money within a few weeks. Others will keep on plugging after being turned down time and again. They have that spark of determination that will carry them over adversities and eventually make them top salesmen.

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SPECIALTY SELLING METHODS

Trailer Takes Product Display To Dealer or Retail Customer

MIAMI, Fla.—For the display of some of their newer products, the Typhoon Air Conditioning Co. and the Typhoon Prop-R-Temp Corp. have revived one of the oldest and most effective methods of direct selling. Taking a tip from the peddlers of yore, they have successfully promoted products in the field by the use of small trailers hooked on to standard passenger automobiles.

The idea was first tried out in Texas, when Don V. Petrone, Typhoon's president, was on a tour of the state with the local district manager, Richard B. Cherry, Jr. They mounted a complete "Convert-to-Cool" display unit in a rented trailer and toured a number of cities and towns, showing the equipment to dealers who might be interested in taking on the Typhoon line of residential conversion products.

Lining Up New Dealers

"This was the first time most of these dealers had ever had a product delivered right to their door for a demonstration," Petrone relates. "In every case we managed by this means to get the complete attention of the prospect—and what more can a salesman ask?"

In addition to the value of the trailer idea for dealer demonstrations, it was found that considerable interest was shown wherever the trailer appeared. Thus a bonus of consumer publicity can be added to the other advantages of this method of selling.

Although it was considered too late in the year for other Typhoon district sales managers to make effective use of this device in 1954, pictures of the trailers were sent to E. L. Garfield, president of the Typhoon Prop-R-Temp Corp. of Florida, who enthusiastically took up the idea for the promotion of heat pumps.

Garfield purchased a small trailer and an inexpensive cooling tower for approximately \$500 and proceeded to mount a 3-ton Prop-R-Temp heat pump on the trailer along with display signs. With this trailer, Garfield and R. P. Cook, Typhoon Prop-R-Temp's field engineer, have toured various parts of the country, with stops in St. Louis, New Orleans, Alabama, and Mississippi, and on Dec. 2 and 3, the heat pump trailer was exhibited before the National Convention of the Refrigeration and Air Conditioning Contractors Association meeting here.

No Damage from Travel

The use of the trailer has been particularly welcomed by public utility companies which are in many cases enthusiastically supporting the use of heat pumps in order to even out electrical loads for summer and winter.

Through all of its travels, the Typhoon trailer-mounted heat pump has been kept in operating condition, and so far there has been no leakage of refrigerant or other damage due to this method of transportation.

A heat pump dealer in Pensacola, Fla., Hugh Gilmore, was able to top the idea with one of his own that he had been using for several months.

Gilmore had mounted a heat pump on a trailer and had equipped it with a long flexible canvas duct. Hauling the trailer to the home of a good prospect, Gilmore simply connects the duct to an open window and is able to demonstrate how this single small unit can actually cool or heat an entire home.

The Pensacola dealer reports that this method is far more successful than any he has ever tried,

and that the cost of the trailer and the small cooling tower required to operate the water-to-air Typhoon heat pump has already been paid many times over through increased heat pump sales.

In November, 1954, the Typhoon Prop-R-Temp heat pump trailer was loaned to the Lowry Electric Co. in Miami, a contracting firm recently appointed to handle both Typhoon air conditioning products and Typhoon Prop-R-Temp heat pumps. George Klein, sales manager for Lowry Electric Co., had the unit placed right in the company's sales offices. After two days, he phoned the Prop-R-Temp head-

quarters in Tampa to report that he had made his first big sale.

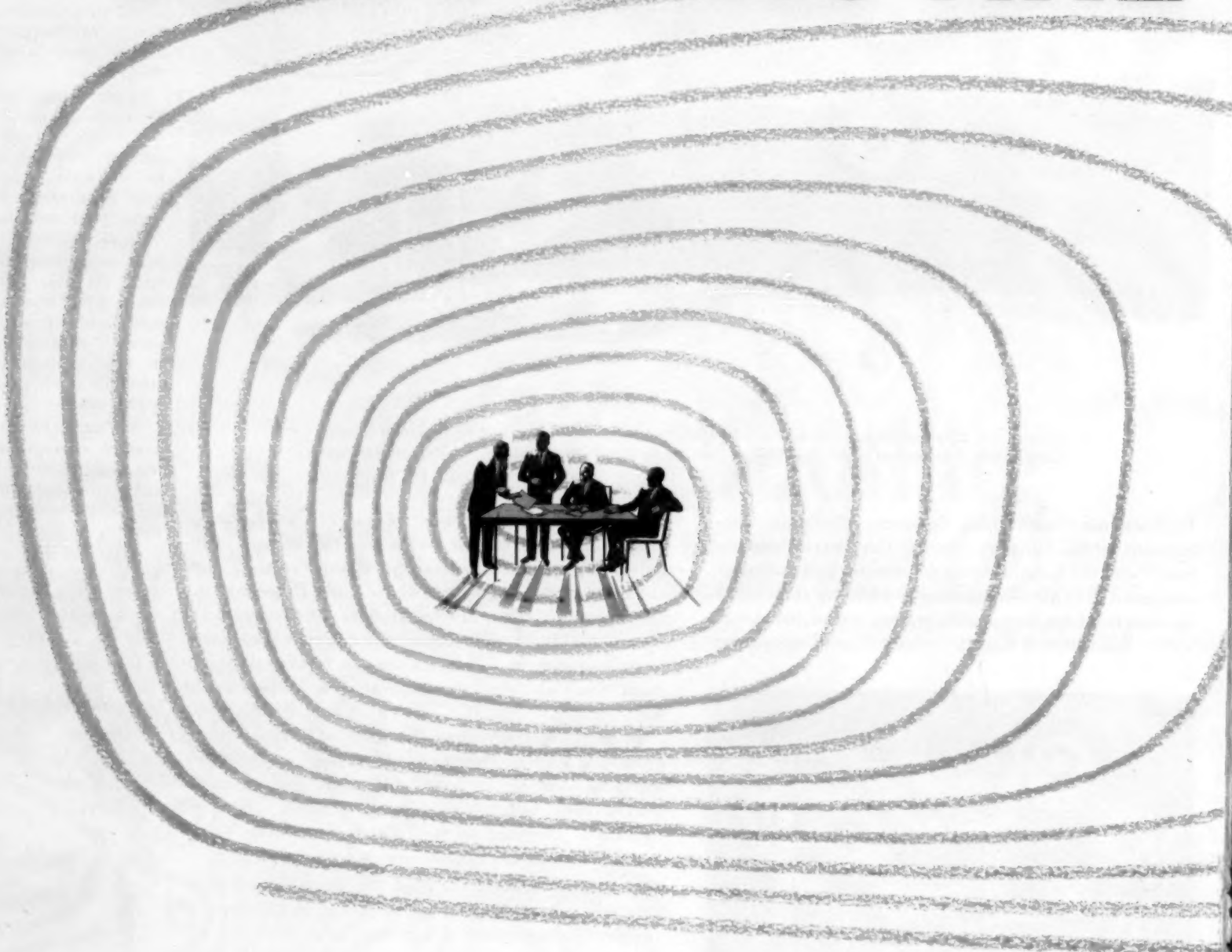
"Before I got this trailer," explained Klein, "I have always had to do all of the selling myself. This time, I found that the trailer display did the work for me—I hardly had to say a word." As a result of this experience, Klein expects to buy a trailer for the exclusive use of Lowry Electric Co. and to use it both in the field and in the sales offices.

Mark E. Mooney, vice president and sales manager of Typhoon, says that he has no doubt the trailer idea will be put to extensive use by Typhoon district managers and dealers during the coming year.

"PEDDLER'S WAGON" type of merchandising can be effectively employed in air conditioning, particularly since packaged units have become so compact. Perched on a small automobile trailer, an operating model of a "Prop-R-Temp" heat pump attracts the attention of a pretty Miami Beach model and George T. Howe, Chicago contractor and retiring president of RACCA.



OUR PLANS ARE



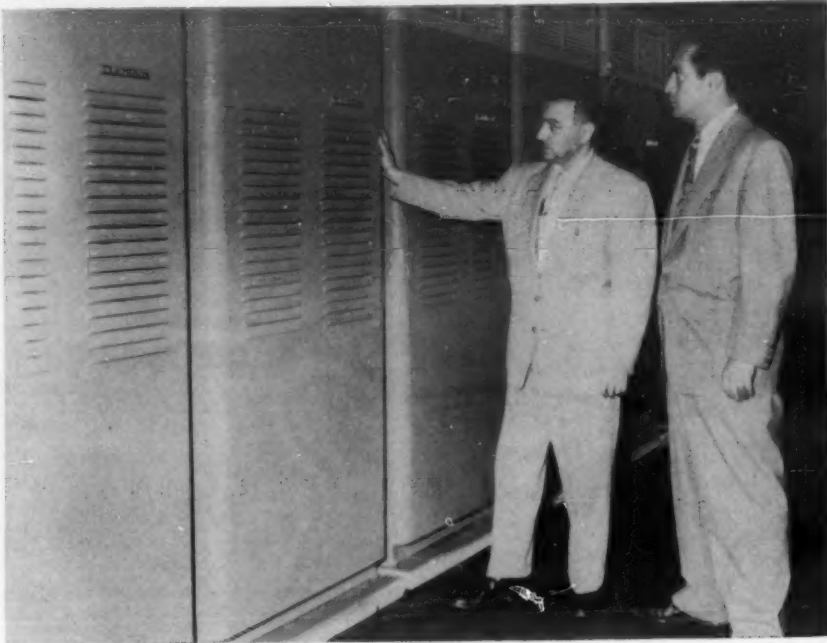
WE PLANNED TO BUILD THE BEST PACKAGED AIR CONDITIONING UNIT IN THE COUNTRY—

and in the process, we blue-printed many of the innovations that are standard on air conditioners today. Back when we began pioneering in packaged air conditioning, we found that new ideas in engineering were what the industry needed. And because we never stopped giving priority to new and better ideas, we are putting out a unit today that is second to none. More solid copper than any other make. Oversize components that give you a reserve of power. Great engineering from coils to condensers. One result: a Typhoon dealer never has to overestimate tonnage on a job. He knows that a Typhoon unit delivers every bit of its rated capacity—and then some.

TYPHOON

TYPHOON AIR CONDITIONING CO., INC.

505 Carroll Street, Brooklyn 15, N. Y.



IMPROVED STYLING AND FINISH are marking new lines of packaged air conditioners. These 5-hp. Typhoon units (here being inspected by Murray M. Kabil, left, chief engineer, and Don V. Petrone, president, in the firm's new quarters in Brooklyn) are finished in the new two-tone gray finish, which will be standard in the company's 1955 line of packaged air conditioners.

Kitchen Pans, Theater Marquees Too

For Exporting Air Conditioning, Variety of 'Know-How' Is Needed

NEW YORK CITY—If you plan to set up your own export department or company for air conditioning and refrigeration equipment, you'd better be prepared to handle along with it such unrelated items as kitchen pots and pans, and theater marquees.

That's what the Typhoon Export Corp. discovered when it set up in 1947 to handle all sales of Typhoon air conditioning equipment to foreign countries.

There are generally two methods of reaching the export market for such products as air conditioners. There are a number of export agents who are experienced in selling anything to the foreign market. The other alternative is for a manufacturer to establish his own

export department, or a separate export corporation.

Before the start of World War II, Typhoon had its own export department which handled sales outside the continental limits of the U. S. Don V. Petrone, now president of Typhoon, was then export sales manager, and had established a number of successful sales contacts, particularly in Central and South America.

After the war, company officials took a fresh look at the field, and decided to set up a separate company, the Typhoon Export Corp., to handle such sales. Douglas W. Fraser, an air conditioning sales engineer with an intimate knowledge of foreign markets, was called in to take charge of the corpora-

tion. Spending most of his time in the field, Fraser soon began to revive the Latin American market.

One of the complexities of Typhoon's method of securing export sales is that any export activity becomes involved in an infinite variety of products. Customers in Latin America and other countries find it convenient to purchase the majority of equipment needed for any building project through their major suppliers, and for this reason the export company had to be prepared to act as agents for kitchen equipment, laundry machines, theater marquees, and a variety of items not directly related to air conditioning.

Another important element in export selling is that customers in foreign lands are often quite dependent on the supplier for engineering assistance. Therefore, Typhoon Export employs a Colombian architect to provide design, layout, and blueprint services, and also maintains an experienced field engineer whose job it is to go from one large installation to another, checking on performance and servicing through local dealers. He is also called upon to supervise the installation of equipment by foreign labor, which is usually relatively unskilled in the application of air conditioning and refrigeration equipment.

In 1951, Typhoon Export added Roy Scantlebury to its staff, principally to manage the main office. A world-traveled veteran export man with over 20 years in the refrigeration field, Scantlebury was also made available for occasional trips to Canada, Europe, and the Middle East.

Sales to Dealers On a Direct Basis Firm's '55 Policy

BROOKLYN—In 1955 the Typhoon Air Conditioning Co., Inc. will base its entire distribution setup on a direct-to-dealer basis, declares Don V. Petrone, president of the company.

The company executive says that his decision is a natural outgrowth of the past policies of the firm, although he admitted that within the last year or so, the company has been toying with the idea of using distributors.

"Basically, it comes down to this," Petrone says. "It is far easier for a manufacturer to sell in large quantities to distributors who will then take over the responsibilities of local advertising, service instruction, merchandising, and selling within the local area and stockpiling of large quantities of units and replacement parts."

"However, what is easier for the manufacturer is not always best in the long run for the success of the type of dealer with whom we do business, in our opinion. It is our feeling that our interests and the consumers will be best served by eliminating some of the problems inherent in a system based upon the use of distributors."

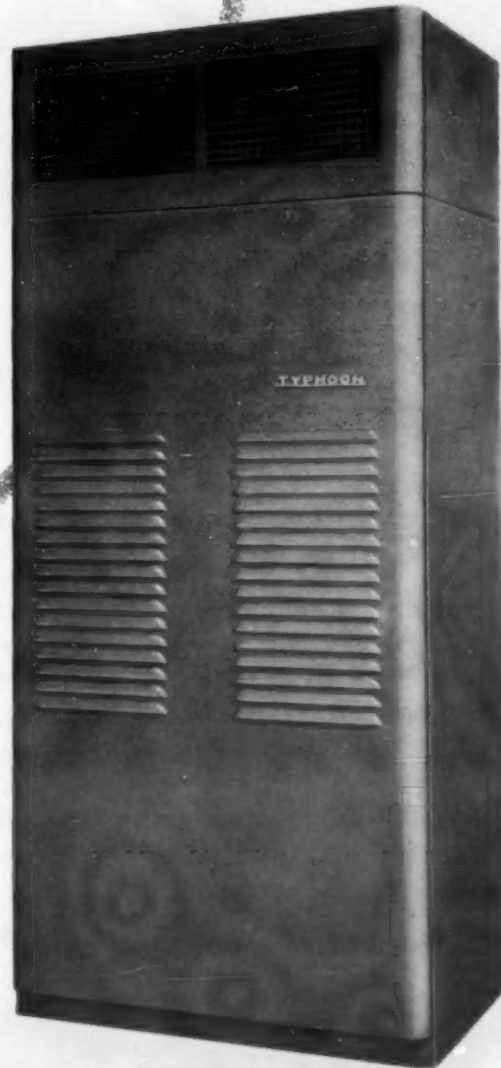
Among these problems, Petrone feels, is the situation in which a distributor feels it is necessary to conduct a retail business along with its wholesale operations, and this in turn leading to a situation wherein the supplier is sometimes competing with his own dealer.

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we knew we had to make it a direct factory-dealer operation. Right from the beginning, we established an open-door policy, inviting dealers to come directly to the factory with their problems . . . talk to the president, if necessary. On the local level, we gave our dealers an on-the-spot district manager who became an extra selling arm. We brought regional training schools right into the dealer's back yard. We set up three inventory finance plans and a retail skip-payment plan. We engineered our unit for really flexible installation, putting our dealers in a position to bid successfully on the darndest jobs you ever saw. That's the way we did it—and the way we're doing it today. A dream of a factory-dealer set-up.

AND NOW, with a fine new plant and expanded production facilities, Typhoon can offer new dealers unprecedented opportunities for growth with the best team in the business. The full story will open your eyes. Write for it today.



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Tight Control over Operation Spells Difference Between Success, Failure

By George M. Hanning

CEDARHURST, L. I., N. Y.—The biggest factor in making money in the refrigeration and air conditioning contracting business is to have a good cost accounting system.

To that Leonard A. Morris, president of Five Towns Refrigeration Co., Inc. here, will swear. He has the proof in his own firm.

"The cost of hiring good accounting service is high," Morris admits, "but I find it worth every penny I spend for it."

"Like a lot of other small contractors in this field, I didn't know what was going on financially in my own business. I kept a lot of the figures in my head and what was put down on paper was never consolidated to give a clear picture."

"I knew what we were supposed to make on a job, but never what we actually did make. At times, just through carelessness, some expenses would not be entered, billings would get lost, and stock parts could get away without any-

one knowing about it. Records were quite haphazard."

The Typhoon air conditioning dealer, who entered the business in 1945 right after he got out of the Air Corps, noted that as his volume grew, he realized the need for a more accurate accounting system. So he hired Samuel Aronowitz & Co., certified public accountants in Manhattan, to set one up for him.

B. H. Wasserstrom, a partner in the accounting firm, Morris gratefully recalls, not only set up a cost accounting system tailored to the company's needs, but completely reorganized its record keeping methods and procedures of operation.

As a result, Morris declared, the firm operates much more efficiently, many profit leaks have been plugged, and the status of the business is known at all times. He said he now has sufficient information to know exactly how much he makes on every job, and,

if the profit is too small, where the excessive cost has occurred. And he gets this information in plenty of time to do something about it.

"From our figures," Morris related, "we get a clear picture of how we are doing in relation to the goals we set. We can tell where we are making our profit or not making it. And we can spot trends that might be significant but of which we were not even aware before."

Current reports include a cost breakdown on all jobs and a chart showing the status of all jobs in progress. The latter indicates clearly how much money the firm has already invested in work that has yet to be completed.

"When we get our reports, we check on everything," Morris explained. "If some figures appear to be out of line, we check promptly to correct the situation and to find out who was responsible. The guilty party might even be me."

"But the knowledge that every-

There are many factors that play a part in the successful growth of an air conditioning and refrigeration contracting business. Such organizations must have sales and engineering talent, and must develop a reputation for making good installations and providing reliable service.

Yet, there have been a number of contractors who seemingly had all of these qualifications, and yet failed to stay in business. If the failures were analyzed, the majority of cases would probably reveal as a major cause the inability of the contractor to control his operations on a methodical, businesslike basis that would assure a profit.

One contractor who realized this early in his career was Leonard Morris of Five Towns Refrigeration Co., Inc., Cedarhurst, L. I., N. Y. What he did to get proper control of his operations is told in a two-part article, first of which appears on these pages.

This first instalment describes the method in which this contracting business operates, and the general system of controls which were set up. *The second instalment, to appear in a future issue, will offer details on the service department operation and service records.*

thing will be checked has changed the attitude of everyone in the company for the better. And it has made a big difference in results."

Keeps Eye on Net Profit

While Morris did not care to divulge his percentage of net profit,

it is a good one for this type of business. One advantage of this system, he noted, is that it keeps the firm's eye on the net profit figure rather than on the total volume figure.

Morris got into the field in 1936 as a household refrigerator serviceman. He kept at it until 1940, when he entered military service. He served with the Air Force as a maintenance officer and flight engineer on B-29's in India, China, and the Pacific during World War II.

When he came out of service in 1945, he saw a bright business opportunity in the budding air conditioning industry and in the rapid growth of chain store supermarkets in western Long Island.

With just a kitchen table for a desk, he joined forces with the Typhoon Air Conditioning Co., Inc. and started out selling air conditioning and refrigeration equipment to the chain supers. On the refrigeration side, he sells and installs only the refrigeration equipment, not display cases or cabinets.

Emphasizing service, the part of the business that he knew best, Morris offered it to the chains on a 24-hour, 7-day a week basis. Covering the booming Kings (Brooklyn), Queens, and Nassau counties on the New York City end of Long Island, his volume grew as the food chains' business expanded.

He now counts among his air conditioning and refrigeration customers, he said, almost all the large chain organizations serving his area. These include A & P, Big Ben, Sunrise, Stop & Shop, Dan's Markets, Smilen Brothers, and Whelan Drugs, all of which have 20 or more stores in the three-county area.

While chain stores have become a large portion of his business, Morris notes that the trend of present sales are toward year-round air conditioning in offices, dance studios, television studios, and many other commercial applications.

Five Towns' business has grown to the point, Morris said, where he, Harry Eichhorn, and one other salesman are now selling a volume high in the six figures. Does he think he needs more sales help?

"I would rather spend money for an engineer than pay commissions to a salesman," Morris declared. "It would bring more business."

He has a full-time engineer in his organization now and is considering adding another. He explained that engineer-drawn blueprints are the best selling aid he has.

When a store plans a new unit, Morris gets a drawing showing the outer walls and goes to work to layout the interior. He shows the best location for all interior equipment for selling and storage, where refrigeration, plumbing, and electrical lines are run, where plumbing and electrical outlets are to be placed, and where equipment is to be located.

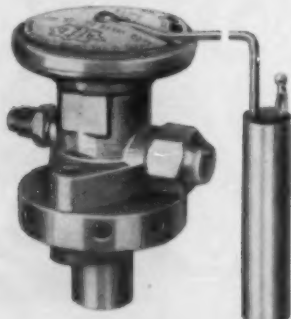
(Continued on next page)



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LEONARD MORRIS, president of Five Towns, personally checks on the installation of two 15-ton Typhoon air conditioners equipped with gas heaters to do a year-round job for a Long Island supermarket.



SY WILLIAMS, chief engineer for Five Towns, checks over a blueprint he is preparing for a new supermarket job. His prints are worth thousands of dollars to prospects in advance planning for their new stores and are a great aid in selling, according to Morris.

Business Control --

(Continued from preceding page)

"Our drawings not only save the store jurisdictional conflicts between unions in running lines and making connections, but also help the store to get terms to fit its needs written into the lease.

Blueprints Help Sell

"These drawings can mean a saving of \$3,000 to \$4,000 for the store. Store management is aware of their value," Morris commented. "We have had little trouble with market officials misusing our prints to solicit other bids. They know if they once misuse a print, they will never get another."

Morris' drawings are made by Sy Williams, his chief engineer. A graduate mechanical engineer, Williams has had six years' experience in air conditioning, heating, and ventilating work with a firm of architectural and consulting engineers in New York City. He has been with Morris for about a year now.

Morris counts 20 employees in his air conditioning firm, in addition to utilizing the entire capacity of a sheet metal shop whose facilities are available exclusively to him.

The Five Towns organization, in addition to Morris, consists of an engineer, salesman, a service and installation manager, nine refrigeration mechanics, five helpers, a dispatcher, a stockroom man, and three office employees.

But for turning this organization into an efficient, profitable team, Morris gives his thanks to Wasserstrom of the accounting firm.

He said that Wasserstrom spent months working with him to learn all the operations of his business and to work out an efficient and economical system of procedure and records.

When Wasserstrom finished, he wrote and presented to Morris a procedure manual outlining in detail all the forms, records, and books of account that need to be maintained, and how each is to be used.

It explains how originating, planning, and control of equipment installations should be handled; how labor records should be handled in the field, in the service shop, and in the accounting department; ordering procedure for units, parts, and materials; truck, stock room, and accounting department procedures for parts and materials stores; and billings to customers on equipment installations.

Standardized Forms

Without attempting to describe completely all the forms made for Five Towns, their use, or all procedures developed, it may be helpful to note how some of the basic business procedures for a contracting firm have been standardized for efficient operation and how the forms involved are used.

As an example, the manual out-

lines this system for originating, planning, and control of equipment installations:

"Generally, it is the purpose of this system to provide standard methods of control for all operations dealing with the installation of equipment and for such other operations involving relocation of existing equipment, major changeovers, and the like. The step involved in securing and originating job work may be briefly outlined as follows:

"a. Estimating costs and submitting bids.

"b. Obtaining orders for work in the form of written contracts.

"c. Notification of transaction to accounting department and service department.

"d. Planning materials requirements and work schedules.

Suggested Procedures

"The following discussion deals with recommended standard procedures to accomplish the foregoing steps.

Estimating.

"In all cases involving major work, i.e., furnishing of materials and labor under contract or verbal orders, it is essential that the standard form of estimate sheet be prepared. Estimates of labor, materials, and service reserves should be reviewed with the service manager and engineer for adequacy. Overhead should be applied at current standard rates furnished by the accounting department, which should be checked from time to time.

Originating work.

"After the order has been obtained, the following procedure should be adopted:

"1. Executed original contract, complete in all respects, together with the estimate sheet, should be handed in promptly to the accounting department. (If the work is taken on the basis of a verbal order, a memorandum should be issued to the accounting department specifying all details to the same extent as in a written contract.)

"2. The accounting department should examine the contract for inclusion of all required data and should then prepare the 'abstract of contract.'

5-Sheet Form

This abstract of control the manual refers to is a five-sheet form designed to provide every official involved in an installation with all the information he will need to carry out the contract. It is the key form in the company's operation.

All five sheets contain a brief resume of the contract itself, including estimated starting and completion dates, location of work, description of work, guarantee provisions, and special remarks.

In addition, the first sheet, which is retained in the accounting department, contains space for prices, terms, and billing instructions, a billing record, labor cost

record, and, on the reverse side, a record of materials and other costs.

The second and third sheets, which are retained by the executive (Morris) and the installation or service manager, also contain planning and operating control data which includes space for noting equipment and materials to be purchased, subcontracting required, a progress chart, and, on the reverse side, a cross-hatch

sheet for a sketch of the work to be performed.

The remaining two sheets are simply contract data sheets that are supplied to the engineer in charge of the job and the service manager.

The manual continues:

"The amount of the service reserve, as shown by the estimate, should be noted in the 'guarantee provisions' section of the abstract. After completely checking preparation of the abstract, the accounting department should record the job number assigned in the job register, remove the original from the five-part set, and place the same in numerical order in the job cost record binder. A job jacket should be set up in the files and the estimate sheet should be retained in this jacket.

Rough Sketch Should Be Added to Forms

"3. The remaining four copies of the abstract should be returned to the executive desk with the contract. At this point, the rough sketch should be added to copies three and four, special instructions to field personnel should be inserted, and the equipment and materials and subcontracting purchasing requirements should be

completed in the 'planning and control' sections.

"4. After checking by the executive, the contract should be returned to the accounting department for filing in the job jacket. The triplicate of the abstract should be placed in a binder and retained by the executive. The duplicate of the abstract, together with the two contract data sheets, should be routed to the service department.

"5. The service manager and dispatcher should examine their copy of the abstract for the purpose of checking material requirements and scheduling work assignments. The duplicate copy should be placed in a binder at the dispatcher's desk and the work chart compiled as the job progresses. When the work is assigned, one copy of the contract data sheet should be given to the engineer or mechanic in charge of the job and one copy should remain with the service manager.

Controlling job operation.

"Unless the methods recommended are followed and the forms properly utilized it stands to reason that no useful purpose will be served by merely following paper routines. The job cost record in

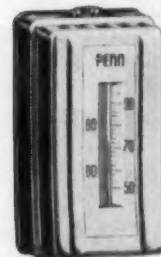
(Continued on next page)

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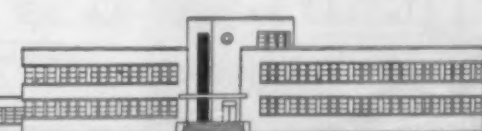
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Total Labor

How Field Warehousing and Retail Finance Plan Promotes More Air Conditioner Sales in Winter

BIRMINGHAM, Ala.—The Lancaster Equipment Co., franchised dealer for Typhoon air conditioning equipment here, makes use of several interesting warehousing and financing plans, in order to gain advantages which enable this firm to operate a growing business throughout the year at a profit, without tying up too much operating capital during the lean winter months.

The seasonal nature of the air conditioning business makes it appear at times a risky proposition. No matter how good sales may be during the summer, there is always a period between August and April when red ink is in alarming evidence, and the dealer is tempted to cut down his sales force and other important business expenses.

To counteract these "Winter Doldrums," the Typhoon Air Conditioning Co., Inc. has come up with various "plans" to encourage the flow of air conditioning products during the winter months.

Warehouse and Financing Plans Work Together

The Typhoon Warehouse Plan enables Lancaster to stock Typhoon air conditioning units right on their own premises, without having to pay Typhoon for the

units until they are sold from the warehouse. The other key plan, whereby Lancaster gets special financing through a New York bank, enables consumers to purchase air conditioning during the winter, and to defer payments until spring.

Here's how the Warehouse Plan works for the Lancaster Equipment Co. It was developed by a field warehousing company in cooperation with a New York bank, and is offered to qualified dealers through a special arrangement which the warehousing company and the bank have set up with the manufacturer.

How Warehousing Plan Works In Actual Field Practice

The plan is designed to provide a method of financing and warehousing quantity orders of air conditioning units. The warehousing company, which has branches in major cities throughout the country, operates what is known as a "field warehousing" system. In Birmingham, this company has leased a segregated portion of Lancaster's premises, and has made it a storage area for the equipment shipped from the factory.

To operate this system, the warehouse company took into their

employ one of Lancaster's employees, to serve as warehouse manager. This man was given thorough instructions for the receipt and release of merchandise to and from the warehouse area. Units are paid for by Lancaster only as they are released for sale from the warehouse—which is thus, in effect, a manufacturer's warehouse located on the dealer's premises for his benefit.

Here are some of the major advantages of the Typhoon Warehouse Plan, as outlined by Clyde Lancaster, owner of the Birmingham firm: "The Warehousing Plan," he says, "allows us to order from Typhoon, in advance of the season, in truckload lots, thus earning us a special discount. In fact, this discount means that in every truckload, we get one 5-ton unit free!"

"Besides that, this method also gives us the benefit of a substantially lower freight rate. Thus we are able to sell at competitive prices without lowering our services to our customers. Since our operating capital is not tied up, we can also spend money in the winter and especially in the spring to promote sales.

Helps Sub-Dealer Sales

"And there's another big advantage," he continues. "Because we can buy in quantity and because we have units on hand when they are needed, we can sell through sub-dealers in smaller towns around Birmingham. And that point about having units when they're needed helps us in many ways. One of the first lessons I ever learned in business is that 'You can't do business from an empty wagon.' Time and time again, we've been thankful that we had the equipment right at hand when somebody needed it in a hurry!"

Deferred Payment Setup

In the Retail Finance Plan, whereby customers can buy air conditioning during the winter months, but do not begin making payments until warm weather begins, advance the benefits of financing to fill the remaining and perhaps the most important gap in the distribution process—the sale to the ultimate consumer. Obviously, field warehousing during the winter will be of little benefit unless the consumer is encouraged to buy the equipment before hot weather arrives.

Under the Retail Finance Plan, a customer can have air conditioning installed in January, on a 36-month payment plan, with payments starting in May! Through a special arrangement with Typhoon, a New York bank picks up the customer's note, and thus enables Lancaster to pay Typhoon for the equipment and to cover installation costs and overhead.

These winter sales keep Lancaster's employees gainfully occupied, augment his light off-season income, and give him that much more time and personnel to take care of the usual overload of orders in the spring.

The consumer also benefits, since he has the advantage of leisure in making his decision, and then is treated to a careful, painstaking installation which the rush of early summer would make impossible.

The buyer can also enjoy ventilation during the winter and early summer, and if heating coils have been installed in the system, there's all the more reason for a cold weather installation.

"The way I see it," says Clyde Lancaster, "these plans make it easier for me to do business, particularly by helping to spread my business over all 12 months. I've been using both these plans for a full year now, and I can face 1955 with a good deal more assurance than I've ever had before at this time of the year."



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Packaged Conditioners Simplify Service; Spot Checks Can Often Reveal Trouble

By Henry Porzio, Service Manager,
Typhoon Air Conditioning Co., Inc.

One of the major advantages of packaged air conditioning is that the serviceman's job is simplified. Any trouble can usually be pinpointed by making a few simple spot checks, especially if the serviceman is familiar with the equipment.

The serviceman should carry a set of gauges, four thermometers, a clamp-on volt ammeter, an anemometer, and a few other tools with him at all times. Some of them will seldom be required; but if he's fully equipped, he should rarely have to return to the shop for special tools.

A majority of calls for service on packaged units can be taken care of by simple mechanical or electrical adjustments. Just as in medicine, however, a great deal depends on the serviceman's diagnosis. No matter how elementary a service problem may be, he's still going to spend a lot of time on the job if he has difficulty in finding out what's wrong.

For example, many servicemen have wasted hours checking equipment from top to bottom for an objectionable noise, often changing

suspected components several times and making numerous return calls, only to discover that actually the noise had its origin in the water pipe installation.

Let's discuss some common service problems. If the serviceman is familiar with these possibilities, and looks for them each time he's called in to check a packaged unit, the chances are he'll find that his record of correct diagnoses will improve surprisingly.

First, here are a couple of statements we've heard from servicemen who should have known better. These points have been raised not once, but many times, in one form or another:

1. "The expansion valve should be replaced. . ."

2. "There's nothing wrong with the refrigeration system . . . if it cuts out on overloads, we'll just have to jump the overload protection."

Of course, you would never be guilty of such statements—but a surprising number of servicemen use them all too often.

The simple fact is that understanding and acceptance of basic

theory in packaged air conditioning is necessary throughout the industry. Without it, the serviceman will be unable to make the quick and accurate diagnoses possible in the servicing of packaged equipment, and will lose time and temper in prolonged and unnecessary "bug" chasing.

MOST FREQUENT FIELD PROBLEMS

The following are some of the problems which confront the service department of a packaged air conditioning manufacturer. While they are not serious in the sense that they cannot be coped with, they are those which most frequently occur in our service records, and by sheer weight of numbers, MUST take their place in the top brackets of servicemen's headaches.

To many, the following facts will be nothing new; but others may benefit by them, since they concern the basic theory which is unfortunately not as thoroughly disseminated as it might be. With the steady and tremendous growth of our industry, moreover, basic theory is always worth repeating, since newcomers are ever joining the ranks and must be properly



informed of new developments and their origins.

Question: Why are there always a few dealers who experience compressor trouble . . . and why is it that these dealers may install, two, three, sometimes four compressors in a system before they discover the real trouble?

Such a service problem as the above is very important, for it involves four major components of the packaged system, namely, the thermostatic expansion valve, the evaporator (cooling coil), the compressor, and the air-handling section.

A rough parallel may be found in the servicing of the electrical system of an automobile. Reasons for battery failure may be difficult to diagnose, and a hasty or uninformed remedy may be: replace the battery. Only after several more batteries have failed and have been recharged or replaced may proper examination reveal the cause to be pitted contact points in the voltage regulator or improper functioning of the generator.

On a job where compressors continually seize up, it can be said with 99% certainty that the expansion valve was improperly adjusted by the serviceman. "Adjustments" of the expansion valve are included in most service calls, whether they seem necessary or not. Such an adjustment is one of the most critical in the entire refrigerant system, and should be handled with all possible caution.

An expansion valve that has been opened too much will permit an excessive amount of refrigerant to pass through the evaporator—

so much that, instead of gas, liquid refrigerant enters the suction line and winds up in the crankcase of the compressor. When this occurs, the lubrication oil in the crankcase, having an affinity for refrigerant, will absorb the liquid refrigerant and form a mixture of the two.

TYPE OF PROBLEMS RESULTING FROM IMPROPER ADJUSTMENT

This affinity of oil for refrigerant varies directly with different pressures. At high suction pressures, quite a large amount of refrigerant can be absorbed; while at lower suction pressures, the oil cannot retain the quantity of refrigerant which it absorbed at the higher pressures. At this point, the refrigerant will boil out of the oil, causing vigorous foaming.

This entire process will occur in refrigeration systems only when the heat load is reduced in the coil and the expansion valve accordingly throttles down the liquid flow, consequently reducing the suction pressure. If the process is repeated for several cycles, most of the oil-foam mixture will be pumped out of the crankcase and sucked into the compressor proper. It will then be pumped into the condenser and the rest of the system, where it will lie for a length of time before being returned to the compressor.

Thus, the end result of setting the valve for too small a superheat, may be the washing of essential lubrication from the compressor, causing seizing and burning of compressor bearing and pistons and failure of the compressor.

(Concluded on next page)



"Virginia" Refrigeration Products eliminate call-backs

What makes a refrigeration system inoperative?

Some common troubles include stuck valves, dirty strainers, corroded lines, sludging, plating, carbon. Basically, all these things are caused by poor-quality refrigerants or refrigeration oils.

What's the solution? Here are two which we strongly recommend for high efficiency as well as trouble-free operation—

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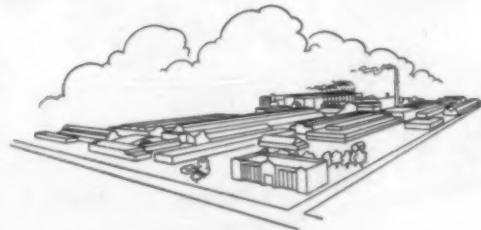
MEMO:

TO: Typhoon Air Conditioning Co., Inc.

FROM: All of us at the Mueller Brass Co.

SUBJECT: As a supplier of refrigeration valves and fittings to your organization, we're proud and happy to have played a part in your amazing progress in the dynamic air conditioning industry. To you we extend our sincerest best wishes for continuing success.

MUELLER BRASS CO. PORT HURON 9, MICHIGAN



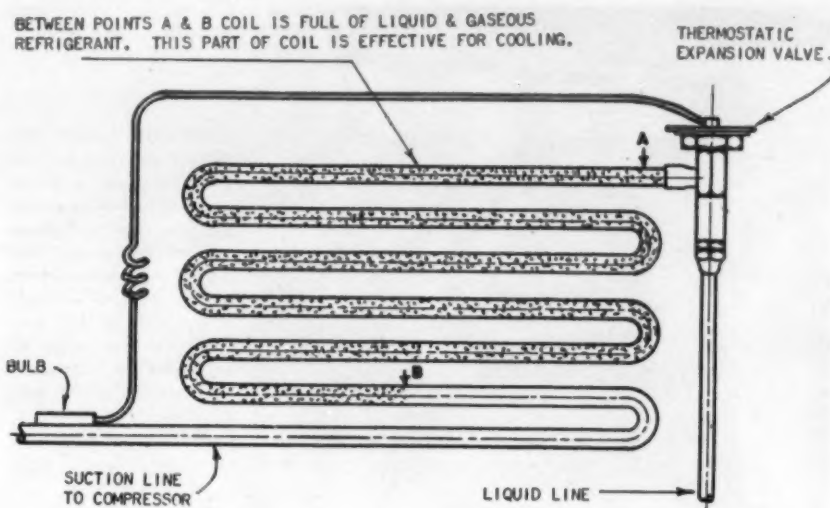


DIAGRAM No. 1 illustrates points in proper adjustment of thermostatic expansion valve in air conditioning system as described in accompanying article.

Servicing Packaged Units--

(Concluded from preceding page)

In operation, the expansion valve passes liquid refrigerant into the coil, where it is evaporated and passes from the coil in the form of gas, through the suction line.

If the valve is set for 10° superheat, for example, the gas passing the remote bulb must be 10° warmer than the temperature of the evaporating refrigerant; which means that the section of the coil immediately ahead of the suction header must heat the completely evaporated refrigerant to a temperature 10° higher than the temperature corresponding to suction pressure.

Under these conditions, the coil in the above diagram will contain a mixture of liquid gas and refrigerant from the liquid header to Point B. At Point B, the liquid will have been completely evaporated, and from that point onward to the remote bulb the coil surface will be used only to raise the temperature of the gas to the superheat setting of the valve.

Should the heat load decrease, the superheating section of the coil, between Point B and the remote bulb, will absorb less heat from the air and the temperature of the superheated gas will remain at a lower level. This lessened temperature, affecting the remote bulb, will cause the valve to decrease the flow of liquid into the coil.

Conversely, when the heat load increases, the superheating section of the coil will absorb more heat and the temperature of the gas will rise, affecting the remote bulb, and cause the valve to admit more liquid.

As the heat load fluctuates, Point B will move back and forth in such a manner that the proper amount of evaporator coil always remains between Point B and the

remote bulb to heat the gas to the superheat setting of the valve, in this case 10° above the evaporating temperature.

WHAT HAPPENS WITH FIELD CHANGE ON SUPERHEAT

If the superheat setting is changed manually, Point B on the coil will move in accordance with the change. It should be particularly noted that Point B is determined by the difference between superheat and evaporating temperatures, rather than by the evaporating temperature alone. This means that, regardless of variations in evaporating or suction temperatures, the amount of superheat remains approximately constant to prevent liquid refrigerant from entering the suction line at all times.

The amount of heat that can be absorbed in the process of superheating cold refrigerant gas is very much less than the amount of heat absorbed by evaporating liquid refrigerant. For this reason, the section of the coil devoted to superheating is almost useless from a cooling load standpoint, and it is therefore preferable to keep superheat at a reasonably low level in order to have as much coil surface as possible performing the cooling function.

However, there is invariably a lag between the time the remote bulb senses a change in superheat and the time the valve responds to that change. Because of that lag, too low a superheat setting will cause liquid to spill into the suction line, while too high a setting will cause a reduction in capacity.

RECOMMENDATIONS FOR ADJUSTMENTS IN FIELD

First, and of vital importance: adjustment of the expansion valve

should not be attempted unless first the air-handling section has passed inspection. Make absolutely certain that the air system is delivering its rated c.f.m.

The expansion valve requires adjusting only when it has been determined that the superheat of the evaporator is incorrect for existing conditions. Superheat reading should be obtained accurately by thermometer, not by feel.

A 10° superheat setting is most common, as it compensates for a varying load. A low superheat setting in a packaged system is hazardous, for the varying load will affect this critical adjustment, in turn permitting the evaporator to pass liquid refrigerant into the compressor. On the other hand, while it is sometimes felt that a high superheat setting would be advantageous, this too is hazardous, for reasons explained above.

The difference in temperature readings in the evaporating refrigerant at point A in Diagram No. 1 and point B of the suction gas at the bulb will give you the correct superheat reading.

SUGGESTED TECHNIQUE FOR OBTAINING ACCURATE DIAGNOSES OF PACKAGED AIR CONDITIONING PROBLEMS

While the average serviceman is so busy during the few months of the cooling season that it is unprofitable for him to spend several hours taking down data on the

performance of a unit, it is nevertheless far more practical to perform a thorough and accurate test than it is simply to throw on a set of gauges and then proceed by rule of thumb.

Gauges may, by indicating true head and back pressures, indicate either that the system is operating correctly or that something is wrong somewhere down the line, in either high or low side. These gauges, however, do not tell you where the trouble exists, and what its exact nature may be; and "The expansion valve should be replaced..." represents no real solution to the problem, unless that accidentally is the case.

USE OF THERMOMETERS, AMMETERS, ANEMOMETER SOLVES MOST PROBLEMS

It is a fact that an additional 10 minutes, spent in installing thermometers at strategic points and using a clamp-on volt ammeter to check current and voltage, and an anemometer to check discharge air, will 99 times out of a 100 give the serviceman the complete story of what is wrong and what must be done.

Such testing is hardly more difficult than the applying of gauges to the machine, but it is surprising how many servicemen feel that it is simply too much of a bother, and that many difficult air conditioning problems can be diagnosed by "feel."

With the readings from the volt ammeter, anemometer, and the readings of thermometers applied to water lines and return and discharge air, we have the equivalent of the patient's temperature, pulse rate, blood count, and urinalysis. We know that trouble exists in the refrigerant cycle, and where to find it.

WHAT HIGH HEAD PRESSURE CAN INDICATE TO SERVICEMAN

For example, if it is found that the compressor is operating at a high head, a further check down the line may reveal that the temperature readings on the inlet and outlet water show only a few degrees' difference. This is an absolute indication of poor heat transfer through the condenser tubes, and should lead the serviceman to inspect the inner walls of the condenser water headers. Very probably, he will find that the trouble lies in a dirty or limed-up condenser.

With the above readings, any serviceman equipped with a basic knowledge of refrigeration and air conditioning can accurately analyze trouble in a packaged air conditioning unit. Moreover, when a dealer wishes help from the factory on certain difficult service problems, it is important that he supply the factory with the basic pertinent information, which these readings, together with other details regarding installation, supply.

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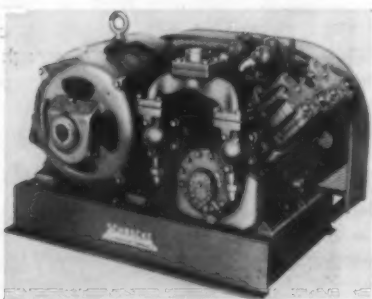
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... such as supplying air conditioning and refrigeration for the world's largest theater. The Blauquita, in Havana, Cuba, shown above, seating 6,700 patrons, is supplied air conditioning as well as ice for its mammoth rink by combined TYPHOON-SCHNACKE powered equipment. No better endorsement for quality and integrity of product could be made than that of TYPHOON by the installation of these ten 50 H.P. SCHNACKE Units.

Write for complete engineering data.

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Flexible Production Methods & Machines Simplify Product Design Changes

BROOKLYN—In the manufacture of packaged air conditioning equipment, as in almost every kind of manufacturing setup, modifications in product design are largely a result of consumer demand, or of the anticipation of consumer demand. There is close collaboration between the sales department and the engineering department on the matter of design.

Field Reports Lead To Important Changes

The alert salesman or dealer, who studies the air conditioning problems of the ultimate consumer and notes the reactions to available equipment, is as important a force in the process of redesign, because of his recommendations, as the engineer who adopts, develops, and blueprints them.

For example, the new Typhoon "Convert-to-Cool" line of add-on equipment was planned and designed when it became evident from field reports and other sources that this type of product would find a ready market. Many builders were asking for air-cooled air conditioning systems, and it was also discovered that a more immediate market for air conditioning existed in established

homes than in new homes.

While this anticipation of consumer demand is most often responsible for product improvement, at other times a direct order or request for equipment that will perform according to certain specifications will set off the process of original design or redesign. Typhoon's new 30-ton packaged commercial air conditioning unit was the result of such an order . . . and once such a single model has been built to specifications, Typhoon's flexible production methods make it possible to start manufacture almost immediately on a production basis; hence, several more 30-ton units have already been sold on the strength of the first.

In addition, the company's engineering staff continues its day-to-day process of experiment and redesigning, with the dual goal of effecting manufacturing economies and improving performance.

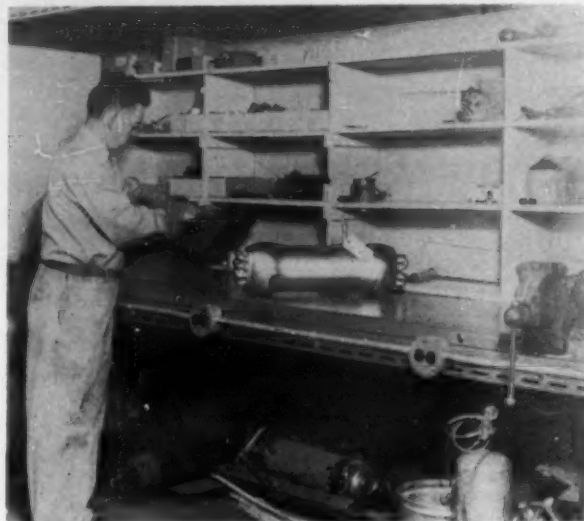
For example, Typhoon's laboratory recently came up with figures and tests which showed that by changing the number of fins per inch on its finned tubing, some important improvements could be made. Previously, Typhoon's finned tubing was wound with fins numbering six to the inch.

Research in the company's test laboratory showed that by increasing the number to eight fins per inch, the capacity and efficiency of the coil would be considerably increased. It was decided to set a limit at eight fins per inch, since closer spacing would result in higher static resistances and would require higher fan horsepower.

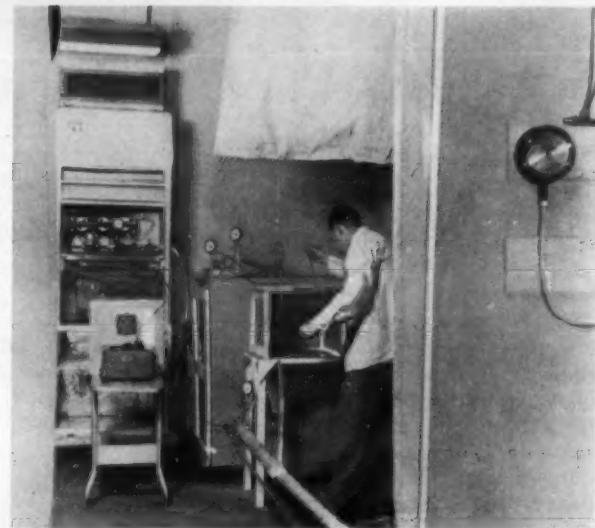
Finning Machinery Was Easily Changed

It was a simple matter to change the finning machinery, since this machinery was of Typhoon's own design and manufacture, and several important advantages resulted: the increased capacity per inch of tubing made it possible to eliminate one row of coils from most units; and it permitted the substitution of aluminum for copper in the cooling coil fins, which led to a considerable saving in cost.

Murray M. Kabili, Typhoon's chief engineer, directs all engineering activities, while Al Weber, assistant chief engineer, is in charge of designing all new equipment. These men, together with Joseph A. Bamberger, director of research and development, are primarily



CONDENSER WHICH HAS BULGED but not burst at 1,800 p.s.i. after a special materials test is examined by Pete Gratin, Typhoon laboratory technician. These rugged all-copper condensers are built to withstand a maximum of 200 p.s.i. in normal field usage, but are tested up to pressures as high as 1,800 p.s.i.



UNDER CONTROLLED atmospheric conditions, Typhoon "Convert-to-Cool" air conditioner is tested at entering air temperatures up to 120° F. by Joseph A. Bamberger, Typhoon's director of research and development.



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THE PHILADELPHIA STORY

Booth 62 at the Heating and Ventilating Exposition in Philadelphia will feature this new line of Tecumseh Hermetics.

responsible for detailing the advances in engineering and design incorporated into the equipment that is finally produced for sale by the field organization.

After this planning group has completed a design, working closely with the sales department, blueprints are sent to Leonard Cramer, Typhoon's assistant plant superintendent, and to Jack Olin, who is in charge of the plant's machine shop. While Cramer completes the "processing," that is, sets up the sequence of manufacturing operations which will most efficiently and economically produce what is wanted—Jack Olin commences to make the new tools and dies necessary, and wherever possible to adapt existing machinery to the operation.

The "processing"—begun in the engineering department and completed by Cramer—then indicates to the purchasing department what must be obtained in the way of raw material, manufactured parts, and tools which the company may not be able to construct itself.

Pilot Models Receive Exhaustive Testing

Before a new unit or model is put into production, however, a pilot model is constructed and tested exhaustively in the engineering laboratory to determine its operating characteristics. The design of the unit is not finalized until Typhoon engineers are assured that the unit will perform satisfactorily under standard conditions set up by the American Society of Refrigerating Engineers, and, in many cases, under far more severe conditions. This means that every component part, from a small electrical relay to the entire refrigerant system, must meet exacting requirements before being incorporated into the Typhoon design. Field tests are usually required as well, especially for radically new or improved equipment.

Although it is theoretically possible to predict how a new packaged unit will perform, actual tests may point to necessary redesign—the condenser and evaporating coil may not balance out properly, or a vibration or noise problem may exist.

Typhoon has emphasized special design features to insure full-rated capacity even under extreme conditions; and in several instances, as a result of test lab findings, suppliers have cooperated in redesigning their component parts to fit the particular ap-

plication which Typhoon required for their design.

For example, in developing Typhoon's "Convert-to-Cool" air-cooled condensing unit, there was very close cooperation between Typhoon and the Tecumseh Products Co., which manufactures the compressor used in that unit. Engineers from Tecumseh spent several days at the Typhoon laboratory while tests were run; and as a result certain modifications in the control system were agreed upon to make certain that the "Convert-to-Cool" would do the job in the field that Typhoon had specified.

Lab Tests Conducted Under Severe Conditions

Rigorous tests are applied in the test lab procedure to make sure that the unit or component will operate under the most unfavorable conditions. For the Typhoon "Convert-to-Cool," tests were run with air temperatures as high as 120° F. entering the air-cooled condenser. Under actual field conditions, this unit will seldom encounter entering air temperatures higher than 105° F. By establishing that the unit will operate satisfactorily at 120°, the company insures that reserve capacity will be available for even the severest application.

After these tests have been run, the laboratory goes to work to get the information which the field men must have in order to properly install the unit. Such questions as "What is the basic refrigerant charge needed for the 'Convert-to-Cool' system?" and "What is the static pressure drop through the remote evaporator coil installed in existing ductwork?" are answered through such tests.

Standard Units from Line Are Spot Checked

Often a standard unit is pulled from production for a spot check. Such a unit is tested as thoroughly as a newly designed one, under controlled conditions of temperature and humidity in Typhoon's insulated laboratory.

Such tests may require special setups and a good deal of ingenuity to obtain the desired results. For example, in order to know what actual temperatures are developed in a compressor bearing when it is fully loaded and the compressor is operating, thermocouples are embedded in the bearing in

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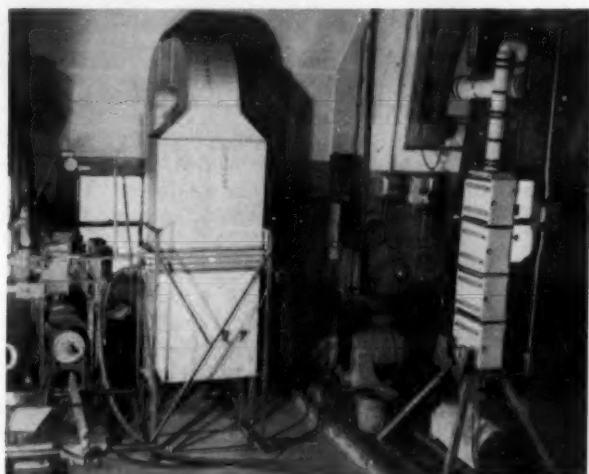
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Tests Assure Effectiveness of Components--



LABORATORY TEST is made on air-cooled condenser for "Convert-to-Cool" unit. By means of a potentiometer, temperatures are read at various points in system to evaluate performance. Pressure drops are read on calibrated gauges mounted on manifold, while 16 thermometers measure air inlet and outlet temperatures.



TEST APPARATUS set up at Brooklyn Polytechnic Institute for the study of heat transfer on Typhoon coils. During the test period, rows of coils have been varied from one to eight; in this setup, three rows are shown. Air inlet is at bottom, water inlet and at left side of coils. Electrical measurements are taken to determine c.f.m., while thermometers check air inlet and outlet temperatures. Blower with adjustable airflow is located behind apparatus.



CHECKING TEST RESULTS are Abraham Lapin (left) of the Brooklyn Polytechnic Institute, and Joseph A. Bamberger, Typhoon's director of research and development.

(Concluded from preceding page) such a manner that they do not interfere with proper operation, while at the same time the connections to the outside recording instruments must be made in such a way that no refrigerant can escape.

Another interesting test method involves "sight ports," which are used on various components in the refrigeration cycle to enable engineers to actually observe the refrigerant in motion. By this means, it is possible to answer accurately such questions as, What is the size of the receiver required, and, What is the best possible arrangement of refrigerant connections and tube sizes to be employed?

Periodically, strength tests are run on such components as condensers and heat exchangers. Though these components have been designed by Typhoon engineers with a safety factor of at least "5," such tests usually proceed even beyond this high safety factor before the vessel will burst. A Typhoon condenser, which in ordinary usage might be subjected to a maximum of 250 p.s.i., bulged but did not burst when subjected to 1,800 p.s.i.

In the manufacture of its own finned tubing, Typhoon runs extensive tests in its laboratory to determine heat transfer coefficients. After these coefficients have been established, they are used by Typhoon's engineers to compute how much evaporator or condenser surface is required for a new design to insure maximum capacity.

Because of Typhoon's experience in the manufacture and application of finned tubing, and because the factory retains enough flexibility to produce custom-built coil arrangements, Typhoon finned tubing is much in demand as a separate item, and in itself constitutes a brisk business for the firm. It was recently used to heat and cool the Grand Ballroom and other public rooms of the Waldorf-Astoria hotel, and has figured in many other custom installations.

Not far away from Typhoon's Brooklyn plant, the Polytechnic Institute of Brooklyn, one of the nation's outstanding engineering schools, has undertaken an independent study of heat transfer coefficients on Typhoon evaporator surface. Under the direction of Professor W. Fred Schurig, the Chemical Engineering Department is employing Typhoon coils in a current project, to study some basic aspects of heat transfer and to establish equations from which predictions of performance may be drawn for any conditions that may arise.

'Do-It-Yourself' Policy Aids In Making Rapid Design Changes

BROOKLYN—A decade ago, Typhoon was operating primarily as an assembler of packaged air conditioning equipment, using components purchased from other manufacturers. Over the years, however, a thorough and continuous study of cost and quality indicated that in many instances the best results could be obtained by the firm's manufacturing certain of its own components.

The Typhoon policy has been to concentrate on the manufacture of those components which apply specifically—and usually exclusively—to air conditioning. In 1946, with machinery designed and built by Typhoon, the firm began the manufacture of its own finned tubing, condensers, evaporator coils, return bends, and the larger bends that carry the refrigerant. In 1947, Typhoon began to manufacture its own packaged unit cabinets, and added a painting and baking department for this purpose.

The more general components, however, such as motor-compressors, blowers, and other items manufactured in large quantities by specialists in their fields, are still purchased by Typhoon. Buying in this manner, Typhoon is able at short notice to secure a variety of components for new or redesigned units. The advantages of such flexibility are reflected in the firm's fast switch to residential units, requiring components not previously used in Typhoon manufacture, and the speed with which a hermetic line was brought out in addition to the existing line of units with open compressors.

Set up in 1947 by Leonard Cramer, Typhoon's completely equipped machine shop has produced over 70% of all tools used in the manufacture of the firm's packaged air conditioning equipment, and over 20% of the capital machinery employed. Some major examples of machinery which Ty-

phoon has designed and built for its own use are the finned tubing machines, its tube bending machines—both for large copper bends and for small return bends—and an exclusive tube cutting machine.

Practically all punches, dies, jigs, fixtures, back gauges, and jumping gauges used in Typhoon manufacture are the product of this machine shop. Designed by Leonard Cramer and by Jack Olin, these tools are used in slotting, small punching, in forming of knockouts and louvers, and in the blanking and forming operations performed on the large press brakes.

Typhoon's tube bending machines were designed by Jack Olin. The return bend machines incorporate special design features which permit the forming of 1½-in. bends on a type of die not ordinarily used for this purpose, due to the sharp radius. These bending machines are particularly important, since the small radius of the bends permits the construction of unusually compact condensers and evaporator coils.

Cramer and Olin were responsible for the design of Typhoon's finned tubing machines, under the supervision of Chief Engineer Murray M. Kabili. James Moore, foreman of the finned tubing department, was in charge of constructing the machines, and worked for a considerable length of time to eliminate the "bugs" and get the machines on a producing basis. Moore was also responsible for the firm's special tube cutting machine.

The machine shop is equipped with metal lathes, drill presses, a planer, shaper, surface grinder, and various other equipment. Its most recent achievement was the design and construction of a special production oven which will enable the coil department to braze 30 return bends in the time previously required for one.

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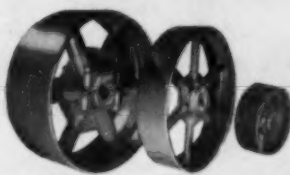
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What Interest Does the Heat Pump Hold For an Air Conditioning Contractor?

By E. L. Garfield, President,
Typhoon Prop-R-Temp Corp. of Florida

Why should the air conditioning contractor be interested in heat pumps, when the market for standard air conditioning equipment is still growing?

First of all, let me make it clear that I am talking only about water-to-air heat pumps, using ground water to obtain heat in the winter, and to carry it away in the summer. Typhoon Prop-R-Temp Corp. produces this type exclusively.

You can sell heat pumps in any area where:

1. Ground water is available at temperatures above 40° F.
2. Electric rates are relatively low—not much above 2 cents per kwhr.

While you may have heard heat pumps described, let me assume that you don't know a heat pump from a sump pump. If you'll read this description, you'll find that you can explain the principle of the heat pump to anyone. Think of the common water cooler in an office. It has an air-cooled refrigerating machine to cool drinking water. It cools the water by taking heat from it. The air-cooled condenser blows this heat out into the room, and if you let the water run for any length of time, you

are actually heating up the room. This, basically, is the principle of the heat pump.

To make your water cooler perform the actual function of a heat pump, you would have to install a simple valve to reverse the flows of the refrigerant. In this reversed cycle, the refrigerant would be chilling the air instead of the water, and the heat would then be passed off into the water that flows through the pipes.

It Isn't Complicated

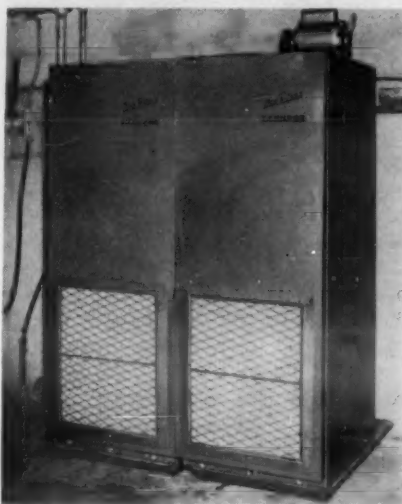
Of course, there is hardly any future in converting water chillers into heat pumps, but I do think that this comparison helps to dispel the common notion that heat pumps are enormously complicated. The commercial heat pump is nothing more than a standard air conditioning unit with a four-way valve, by which the flow of refrigerant can be reversed. Servicing and installation do require some special knowledge, but the machinery itself is not hard to understand and work with.

The heat pump is simple, effective, tremendously efficient—and it works! You as a contractor should be interested in it because

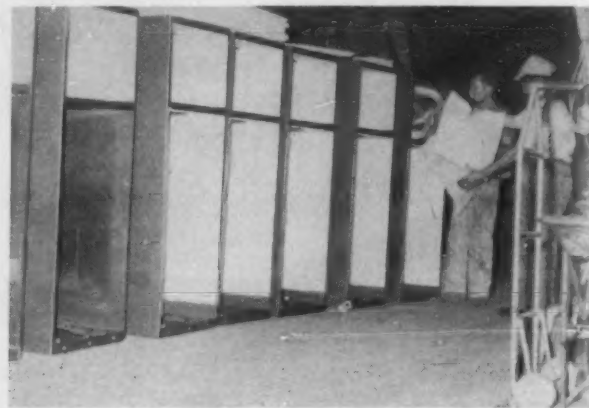
it has great possibilities for commercial development in this coming age of air conditioning.

Much of the sales resistance to the heat pump has been removed by the unusual amount of publicity given to it in the past few years in the press. One can hardly think of a single magazine or paper that hasn't run at least one story

(Continued on next page)



FLEXIBILITY is offered in package heat pumps. Pictured here are two 3-ton "Prop-R-Temp" heat pumps combined to form a single unit, which produces 6 tons of air conditioning.



GLASS FIBER thermal and acoustical insulation is applied to 2 and 3-ton heat pump cabinets.



BECAUSE THE CIRCULAR condensers in "Prop-R-Temp" heat pumps must double as water chillers during the heating cycle, they are insulated against sweating by a special process employing granular material applied in a mastic solution. Afterward, condensers are air dried and sprayed with aluminum paint before installation.



NEW NON-FREEZE condenser chillers for "Prop-R-Temp" heat pumps. Front to rear: 5 ton, 10 ton, 20 ton.

There's nothing like ANACONDA Tubes to cut production costs at the Typhoon Plant



Several examples of the versatility of ANACONDA Copper Tube can be seen in these assorted tube bends fabricated by Typhoon Air Conditioning Co.

Copper tubes in the Typhoon condenser are brazed to the tube sheet, which in turn is brazed to the copper shell. Inset shows location of condenser in Typhoon model 114, 10 H.P. packaged air conditioner.

The workability of ANACONDA Copper Tubes, plus their uniformity of temper, cut production costs for the Typhoon Air Conditioning Company in the manufacture of its highly engineered packaged air conditioning units.

Typhoon takes pride in its all-copper shell-and-tube condenser, for instance. From the thick copper shell to the paper-thin tube fins, ANACONDA Copper makes the big difference. The heavy shell can be easily punched, and collars "extruded" for refrigerant connections. After the tube assembly is in-

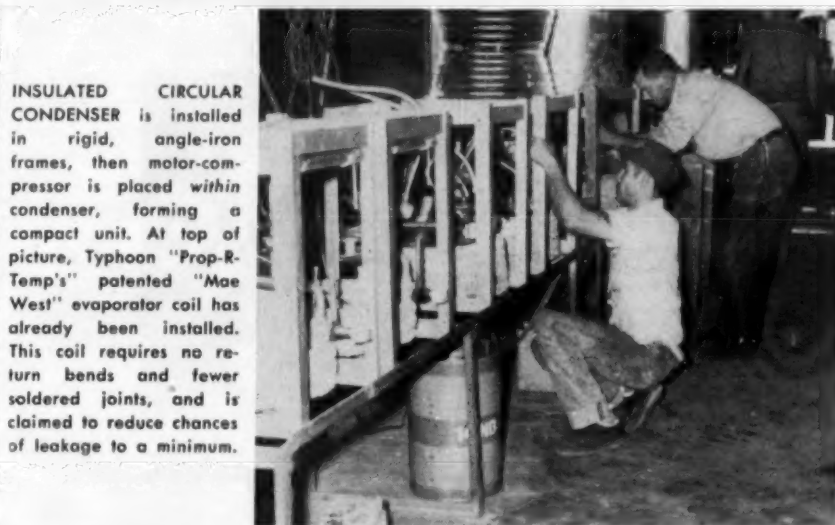
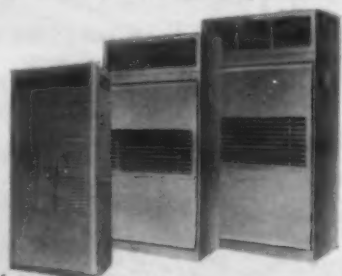
serted and capped with a copper tube sheet, the copper-to-copper construction is ideally adapted to silver-alloy brazing.

And then, of course, there's nothing like copper's efficiency for thermal conductivity, nor its suitability for use with both water and hydrocarbon refrigerant. That's why you should insist on ANACONDA Copper Tubes and other ANACONDA Refrigeration Products by name. The American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ont.

for consistent uniformity—ask for

ANACONDA
REFRIGERATION PRODUCTS

Typhoon manufactures a full line of packaged air conditioners, from 2 H.P. to 30 H.P. in size. In all these units, copper plays an important part.



INSULATED CIRCULAR CONDENSER is installed in rigid, angle-iron frames, then motor-compressor is placed within condenser, forming a compact unit. At top of picture, Typhoon "Prop-R-Temp's" patented "Mae West" evaporator coil has already been installed. This coil requires no return bends and fewer soldered joints, and is claimed to reduce chances of leakage to a minimum.



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Compare Wysong Shears with any other make. You'll be convinced there is no better value. See your dealer or write factory for full information.

WYSONG

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A 3-TON HERMETIC heat pump chassis is removed from test chamber, sliding down rails into its cabinet. Test chamber itself is conditioned by heat pump, in order to test units on both cycles.

Heat Pump and the Contractor--

(Continued from preceding page) about this marvelous new comfort machine—"Heat pump?" "What is that?" Such a situation rarely occurs today. When you start selling a heat pump, you find customers know what it is and what it does, and are interested and eager to find out all about it.

The power companies—your local power company included—are interested in promoting heat pumps because they offer a year-round load that they find very desirable and profitable. In some localities the power companies are actively engaged in pushing heat pumps. Many units now installed have been sold on the direct recommendation of the power company.

The commercial possibilities of the heat pump can best be illustrated by success stories—a couple of Horatio Alger "rags to riches" thrillers.

We started our first promotion of the Prop-R-Temp heat pump in Tampa, Fla., for a number of reasons. First, we wanted to limit the operation to one locality where

field installations could be closely watched. Second, the climate and water conditions were favorable; and third, we had the promise of cooperation from the local power companies.

All the retail sales in the Tampa area have been handled by Advance Appliances, Inc. which, previous to 1950, had been a small business, selling appliances and standard Typhoon air conditioning units.

In 1951, the first year of full time heat pump selling, Advance Appliance's volume was double that of 1950 or any previous year. In 1952 their volume was 4½ times that of 1950; in 1953 over 5 times, and in 1954 their volume was nearly 7 times as great as in 1950, when they were selling standard air conditioning and appliances.

Heat Pump Sales More Than Triple Regular Units

They still sell a lot of air conditioning (no appliances), but here again I think you will be interested



Typhoon uses Microlite glass fiber insulation because...

- ✓ MICROLITE has an excellent "k" factor—inch for inch it is one of the most efficient of all insulating materials.
- ✓ MICROLITE has superior sound absorption characteristics—especially at middle to high frequency levels.
- ✓ MICROLITE is easy to fabricate—reduces production cost.
- ✓ MICROLITE is very light in weight—saves pounds per unit.
- ✓ MICROLITE is easy to install—no special tools or skill required.
- ✓ MICROLITE is highly resilient—compresses readily and springs back to original thickness.
- ✓ MICROLITE is soft and pleasant to handle or apply—does not itch.



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in the ratio of heat pump sales to straight air conditioning. In the year just finished (up to September, 1954), their sales of heat pumps was 3½ times the sales of regular air conditioning units.

That, I think you will agree, is a pretty good "success story," but what does it mean? Here is a dealer who in four short years has grown from a small-time operator to the outstanding air conditioning contractor on the west coast of Florida.

The evidence is pretty conclusive that heat pumps must have had a lot to do with it, because right now he is selling 3½ times as many heat pumps as standard air conditioning. His profit margin on standard air conditioning is the same as for heat pumps. Why does he sell heat pumps?

There are a number of answers to that, but probably the most important is the fact that with standard air conditioning his salesmen are bogged down in a knock-down-drag-out battle with competition, and the heat pump neatly takes him out of that mess. If your customer has a few more dollars to spend, it is pretty easy to sell Cadillacs because there isn't very much competition.

They're Easy To Sell

Heat pumps are easy to sell too—for the same reason.

Here is another success story about heat pumps. Lee Desmon came to work for us as a test engineer, and he conducted a long series of tests to accurately establish ratings of our hermetic heat pumps. These tests were quite extensive and covered a period of about six months.

Whether it was our Florida sun, the fact that he was impressed by the performance of the units, or the fact that his wife was going to have a baby, or a combination of the three, I don't know, but he suddenly decided he wanted to go into business for himself.

He didn't have any previous business experience, but he did have a way of generating enthusiasm, and we had confidence enough in him to send him down to Sarasota where our heat pumps had never seemed to click. For the first two months he didn't do much. Then he finally ordered one heat pump—in about another month he ordered another one—then two weeks later another. Then we began to get orders every week or so. He has been in business just a little over six months, and last month he ordered 15 heat pumps.

Another Success Story

In six months his orders to us have amounted to \$45,357, which probably makes his sales at the retail level about \$120,000.

I challenge any air conditioning contractor, with any amount of business experience, to go into a new territory—cold—with any brand of air conditioner—and with small working capital, just by himself, all alone, bucking long-established competition, and to run up a score like that.

As another success story, I might well describe the progress of our own company, the Typhoon Prop-R-Temp Corp. This company was set up by myself and by J. F. Dailey, who is chairman of the board of the Typhoon Air Conditioning Co.

We started out in 1950 buying standard air conditioning units from Typhoon, and converting them into heat pumps. Little by little, we began to design parts and components that were specifically adapted to the heat pump, until now our production of heat pumps originates almost entirely in our own factory building in Tampa. We are currently producing these packaged heat pump units in sizes from 2 to 25 hp.

In the space of nearly five years, we have built a manufacturing organization which is completely self-supporting. We do our own promotion and selling, we enter national trade shows. We have complete facilities to carry on a national manufacturing and dis-



IN SEARS ROEBUCK store in Levittown, Pa., Charles Barrows, chief engineer of the Tullytown Supply Corp., stands beside a 5-ton "Prop-R-Temp" heat pump in the store's basement recreation room. The all-electric heat pump provides cooling and heating for the general offices, and for the recreation room.

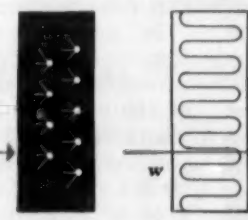
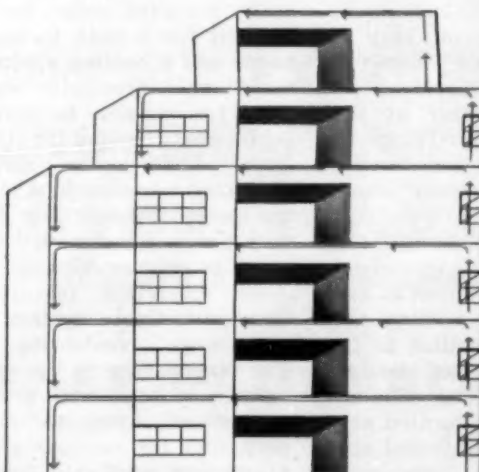
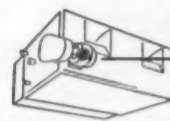
tributing operation. Typhoon Prop-R-Temp heat pumps have been installed as far north as Pennsylvania and New York, as far west as Nevada and California, and even in Seattle, Wash.

We have appeared before meetings of power companies and of engineers. We've had national publicity. We are listed by leading magazines as one of the principal

(Concluded on next page)

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Please send me a copy of "MOTOR SHOWDOWN" and the new catalog of Electro Dynamic industrial motors.

Contractor and the Heat Pump--

(Continued from preceding page) manufacturers of heat pumps. And while I grant that we started this company with a well-known name, I believe it is impressive that we have attained such prominence and independence from the "parent" company in the space of five years.

Reason for Popularity

What is the real reason behind the popularity of these heat pumps? The answer to that is simple. The heat pump is an improvement over other methods of heating and cooling, and where you have a chance to tell your story, you'll find that it is remarkably easy to sell.

The heat pump itself costs more than a conventional heating system, but less than a conventional combination heating and cooling system. In areas where water is available and electricity is not too expensive, heat pump operating costs are usually less in the winter than the cost of heating with other types of fuel. In the summer, of course, the cost of heat pump operation is identical to standard air conditioning costs.

So it is easy to sell the customer on the idea of paying a little more than for a conventional heating system—and getting summer air conditioning in the bargain. Or, if your prospect is primarily interested in air conditioning, and needs heating as well, it is even easier

to convince him that he should buy a heat pump to do both jobs.

Element of Magic

There is also an element of magic in the heat pump—the idea of harnessing natural forces to provide human comfort. This element is also present in standard water-cooled air conditioning; when you chill the air, the heat you remove from it is taken away by ground water. But in winter, this effect is even more dramatic.

Water that comes out of the ground stays at about the same temperature all year long. In Florida, for example, the temperature of this water stays at 65° to 70°. But even when water feels cold to the touch, it still has heat in it, and when you chill the water, you're removing this heat. Therefore, you can truthfully say that you are actually getting your heat "from the earth."

Check with Utility

If you are interested in the opportunities offered by heat pumps, talk to your local power company. Show them this article, and ask them whether they feel that a profitable heat pump operation can be supported in your area. Further information, such as detailed breakdowns of the cost of operating a heat pump compared to conventional heating costs, are available from manufacturers such as ourselves.

New Models To Bow at Philadelphia Jan. 24-28

PHILADELPHIA — Two new models of the Typhoon "Convert-to-Cool" air-cooled residential conversion unit will be shown for the first time at the 12th International Heating & Ventilating Exposition here, Jan. 24-28, exposition officials have been informed by the company.

A 3-hp. Convert-to-Cool model was shown privately on May 8, 1954, at the Typhoon plant in Brooklyn, and was displayed to the public a week later at the National Indoor Comfort Show in Philadelphia. Production models were released to dealers about June 1.

The new models will be in 2 and 5-hp. sizes. Like the 3-hp. model, these new units will consist of two separate sections, the cooling coil, which is normally installed in the ductwork right on top of the furnace, and the air-cooled condensing unit, which can be located anywhere outside the conditioned area—in a utility room, breezeway, basement, garage, or attic, or outside the house. The condensing unit includes a hermetic refrigeration compressor and an air-cooled condenser. Extra-heavy cabinet metal and thick insulation are said to reduce the operating noise level to a minimum.

Mark E. Mooney, vice president in charge of sales for Typhoon, states the cost of the Convert-to-

Cool system to the consumer is considerably below that of any other effective cooling equipment.

Mooney believes the market for these installations of conversion systems in existing homes represents the greatest single air conditioning market today.

"While air conditioning is generally accepted today, he says, 'it is hard for a man to buy a new house and a cooling system at the same time—especially since it is often not possible to have the air conditioning added to the mortgage. Thus, while new homes represent a tremendous market for the future, the next few years may well see a greater dollar volume spent in existing homes.'"

An important feature of the Convert-to-Cool system is the extra-large condensing surface. The fan opening in the condensing unit is equipped with a wire grille to prevent injury to children or pets, and for outdoor application, hoods are available for the fan and coil opening.

In addition to the air-cooled Convert-to-Cool line, Typhoon also produces several cooling sections of the water-cooled type. In areas where water is in adequate supply, and convenient to dispose of, water-cooled equipment will render greater efficiency, and does not have to be located in the open air, or attached to a fresh air duct.

Field School on Dealer Premises Proves Its Value

BROOKLYN—Back in 1946 and 1947 when air conditioning was just beginning to recover from wartime restrictions, Typhoon's President Don V. Petrone, and Chief Application Engineer Arthur H. Farr, set out on a tour of the country to convert refrigeration contractors into air conditioning dealers.

A special engineering and sales manual prepared by Typhoon in the form of a school text book is used to instruct dealers and their salesmen on the most effective methods of selling, sizing, installing, and servicing Typhoon packaged air conditioning units.

While it has been the practice of a number of manufacturers to invite dealers to the factory for training, Petrone feels that "the dealer will benefit more if the school is brought right into his town."

The course, which has remained virtually unchanged for almost a decade, consists of 4 or 5 days of concentrated instruction on the above subjects. Particular emphasis is placed on the proper procedure for estimating the cooling load required. Practical examples are presented and students are required to work out their own cooling load estimates based on the information given them.

Considerable time is also spent in discussing the problems of duct layout, piping, electrical work, and other factors usually encountered in the installation of packaged units.

Trouble-shooting and servicing are also emphasized in the course, and, as an additional feature of the school system, dealers' service managers are also invited to visit the Typhoon factory for a few days, in order to sit in on the unit test line, where the majority of service complaints can be easily demonstrated and explained.

In addition to providing training for new dealers, so that the quality of their work will be consistent with company standards, the company has also used the school method as a refresher course for established dealers, in order to make sure that new dealer personnel will be thoroughly acquainted with Typhoon equipment and its application. Some dealers make a point of sending new personnel to regional schools every spring, even though the school may be held several hundred miles away.

At the conclusion of each school session a final comprehensive examination is given on the principles taught in the school. Although the course is detailed and simple enough to make failures few, it is not the policy of the company to hand out certificates unless the "student" actually shows that he has learned to apply these principles successfully and accurately. The certificate reads as follows: "This certifies that (subject) has satisfactorily completed the Typhoon factory training course in air conditioning, as applied to self-contained packaged units, and is recommended as competent in this phase of air conditioning."

Certificates are handed out at a banquet on the evening of the last day of the school session, and prizes are awarded for exceptional students.

The Typhoon regional school system has proved so successful that several of the larger Typhoon dealers in the country have adapted the same method for training their own organizations and sub-dealers.

Allied Store Equipment Co. in Minneapolis, and the Hampton Electric Co., in St. Louis, for example, have each held schools on their own hook, with the assistance of the manufacturer's district sales manager, in order to teach the same principles to a number of individuals who hadn't been able to attend the official school.

Electrical Problem!

Factory Man Finds Solution To Noisy Packaged Unit

FREEPORT, L. I., N. Y.—The manager of a funeral parlor here had been complaining steadily for three years of a rumbling noise in the duct system originating from his packaged air conditioning unit. The noise was evident during the heating season, whenever the thermostat caused the air-handling section of the unit to cycle, and would always occur just before the blower came to a stop.

The numerous service calls in connection with this problem would have frustrated any serviceman, but the man in charge of this system continued probing for the source of the trouble.

Only recently, after having exhausted all means of correcting the situation, did he call the factory for help. Before that, he had replaced three blower motors, in addition to isolating the motor completely from the cabinet and checking the blower operation to make sure that there was no restriction during operation and while stopping.

When Typhoon's service department was called in, it found that as the motor came to a stop a slight vibration would occur. This vibration took place at the moment the starting switch kicked in. We disconnected the belt from the motor, and found that the vibration was still there.

Hence it was concluded that the trouble existed in the motor, starting as a slight vibration which was amplified through the drives of the blower section and further amplified in the ductwork.

This vibration in the motor was scarcely noticeable, and in checking with several motor manufacturers revealed that such vibration is characteristic of some capacitor-type motors, in which the starting switch kicks in at a high r.p.m. and sets up a counter e.m.f. They advised resetting the kick-

in of the starting switch at a lower r.p.m. However, this is a delicate operation which would probably affect the starting kick-out interval of the switch; so the service department worked overtime and came up with another approach and solution to this problem.

It was found that by installing a wire-wound resistor in parallel with the capacitor on the blower motor, it would tend to absorb or discharge the capacitor as the starting switch would kick in. As a result, the blower motor now comes to a very smooth and quiet stand still.

A point to remember here is that the trouble was not mechanical but electrical, and that the three motors tried in the unit, though of different manufacture, had the same characteristics.

Package Conditioners Cool 'Packaging' Room

ROCHESTER, N. Y.—The Wegman's Super Market chain here has recently placed a large order for Typhoon self-contained packaged air conditioners to cool various Wegman's markets in this area.

While most of these units are for use in the main shopping areas of the stores, some have been specifically ordered for use in meat cutting rooms, where they effectively maintain the constant low temperatures required for processing and packaging meats after they are removed from cold storage.

Meat cutting rooms, it has been found, must be sufficiently cool to protect the adjoining cold storage areas against heat gained when doors are opened.

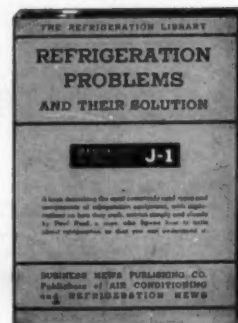
Packaged units are practical for this purpose, since they can be individually controlled by separate thermostats.

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Commercial Refrigeration

Sol Haar To Head New York-New Jersey Commercial Group

NEW YORK CITY—At the annual election of the New York-New Jersey Commercial Refrigeration Distributors Association, Sol Haar, general manager of Mann Refrigeration Supply Co., New York City, was unanimously elected to succeed outgoing president Milton Schwartz of S & M Schwartz & Co.

Other officers elected at the December meeting were Martin Annapolen of G & H Refrigeration Sales & Service Corp. as vice president, and Bernard Sherman of C. Q. Sherman Associates, Inc. as secretary-treasurer.

Membership in the CRDA is limited to prime distributors of commercial refrigeration equipment. Each month, the association meets for dinner and a general business discussion of conditions in the commercial refrigeration industry. Guest speakers are invited to talk on such diversified topics as financing, sales training, and insurance.

Friedrich Has Best 12 Mos. In Its 71-Year History

SAN ANTONIO—Friedrich Refrigerators, Inc. recently completed the best year in its 71-year history, with unit and dollar sales volume "exceeding any previous year by a substantial percentage."

This was announced during the company's annual sales meeting for regional managers, held at the home office here.

The most comprehensive program of distributor development in company history was outlined at the meeting, according to Julius Brinkoeter, vice president in charge of sales.

He said plans were unfolded to build stronger and better distributorships by offering customer helps in merchandising methods, proper installation of equipment, and assurance to the customer of excellent future service.

Mass. Firm To Distribute 'Cup-O-Matic' Milk Vendor

MANCHESTER, N. H.—Food Engineering Corp. here has announced the appointment of Manton Gaulin Mfg. Co., Inc. of Everett, Mass., as distributor of its "Cup-O-Matic" bulk milk vending machine.

Raimond Bowles, FoodCo sales manager, said Manton Gaulin reaches dairies throughout New England and, in addition, plans to employ specialists for sales and service of the FoodCo vendor.

Bowles further advised that his machines were presently operating in key locations in New England.

Victor Products Corp. Moves Chicago Office

HAGERSTOWN, Md.—Victor Products Corp. has announced that its Chicago office has been moved.

New address is Room 546-B, American Furniture Mart, 666 N. Lake Shore Dr., Chicago 11. Telephone number is Delaware 7-2657.

District Sales Manager Clare Jack will make his headquarters in the new location.

Laboratories Install 22 Walk-Ins for Vaccine Handling

RADNOR, Pa.—Twenty-two walk-in coolers for both incubation and refrigeration are being installed in the new Wyeth Laboratories research laboratory and office nearing completion here.

Nine of the cooler rooms are to be used as refrigerators and 13 as incubators, reports Bally Case & Cooler Co. They range in size from 6 ft. by 8 ft., to 18 ft. by 60 ft.

The laboratory's new line of walk-ins are to be used for the storage of many new vaccines in current development. Bally was asked by the architect to design sectional, insulated boxes specifically for a wide range of laboratory uses.

Wyeth Laboratories Div. of American Home Products Corp. is one of the world's leading pharmaceutical firms. The firm is well known for its recent activities in producing the famous polio vaccine developed by Dr. Jonas Salk of Pittsburgh.

Roger Kipp Appointed Larkin Representative

ATLANTA—Roger P. Kipp of St. Louis has been appointed representative for Larkin Coils, Inc. here, according to J. E. Palmer, sales manager for Larkin.

Kipp will cover Missouri, Kansas, and southern Illinois.

Before organizing his own sales agency, The Roger P. Kipp Co., he was manager of the Controls Div. of Jakes-Evans Mfg. Co., and had prior experience as general sales manager of Alco Valve Co.



Roger P. Kipp

Bally Names S. J. O'Brien Metropolitan N. Y. Outlet

BALLY, Pa.—S. J. O'Brien Sales Corp., New York City, has been appointed distributor in the metropolitan New York area by Bally Case & Cooler Co.

The new franchise was jointly announced by Harold L. Parker, sales manager of the O'Brien firm, and Leon Prince, sales manager of Bally.

The O'Brien company is the exclusive Frigidaire dealer in the New York Manhattan area. Established in 1910, it now serves over 250,000 accounts in the greater New York area.

C. Q. Sherman To Handle 'Cold Traveler' Cabinets

CHICAGO—Appointment of C. Q. Sherman Associates, Inc., of Mount Vernon, N. Y., to handle national distribution of the "Cold Traveler" low temperature refrigerated truck cabinets has been announced by Stoddard Industries, Inc., the maker.

Active for more than 35 years in the commercial refrigerated equipment field, Charles Sherman heads his own company, formerly known nationally as Refrigerated Equipment Sales Corp.

This organization will handle the complete merchandising and sales program for the new Stoddard "Cold Traveler" through its sales agents in principal U. S. marketing areas and foreign countries.

Griese Joins Trane Refrigeration Sales Dept.

LA CROSSE, Wis.—Harry F. Griese has been appointed to the Refrigeration Sales Dept. in La Crosse, according to The Trane Co.

Griese was a 1948 graduate of

Duke university where he received a bachelor of science degree in mechanical engineering.

He has also done graduate work at Stevens Institute and Western Reserve university, according to

the company announcement.

Griese came to Trane after acquiring experience as an application, development, and sales engineer in air conditioning and refrigeration.

He spent several years in the U. S. Navy.

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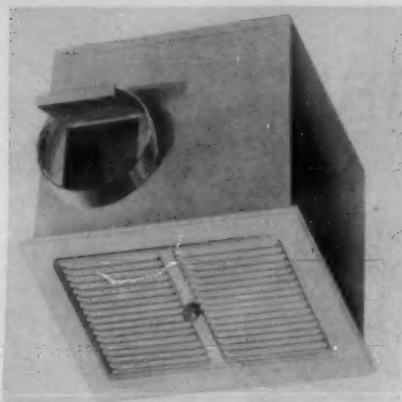
Name _____

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What's New

When requesting further information on new products, please use "Information Center" form.



Ventilator Designed For Bathroom Use

—KEY NO. E-120—

CINCINNATI—A new type ventilating fan has been introduced by NuTone, Inc. here. The new ventilator, model 880, a ceiling unit, is designed especially for bathroom use.

The ventilator is compact in design and has a one-speed motor. It features a flat steel grille which is attached to the ventilator with a single chrome-plated thumb-screw. It is 7 $\frac{3}{8}$ in. deep, 6 $\frac{3}{4}$ in. wide, and 8 $\frac{1}{2}$ in. long.



New Soda Fountain Is Self-Contained, Compact

—KEY NO. E-121—

NEW YORK CITY—A small, compact self-contained soda fountain called the Gavigan "Gay Bar" is being offered by James J. Gavigan & Co., Inc. here.

Measuring 5 $\frac{1}{2}$ ft. long by 27 in. wide, the unit provides four syrup jars and pumps and four crushed fruit jars and cover. The ice cream storage compartment holds four containers (10-12 gals.).

The fountain has an instantaneous soda and water cooler with capacity for 300 6-oz. glasses per hour (from 70° incoming water cooled down to 40°), the company

said. The refrigerator provides 7 cu. ft. storage and sliding chipped ice pan.

Water and soda draft arms are streamlined and located above a removable drip tray which sets over the sink section. This section includes a 10-in. by 14-in. by 10-in. die-stamped sink, running water disher vat, metal refuse chute with tilting door as well as removable can.

Below ice cream storage are a 50-gal.-per-hour carbonator and $\frac{1}{3}$ -hp. compressor.

Electric Window Air Filter Has Automatic Heater



—KEY NO. E-122—

CHICAGO—An electric window air filter with an automatic heater has been introduced by Air-Net Appliance Corp.

A feature of the new unit, called "Therm-Aire" is a system by which the heater coil is turned on and off at varying intervals depending on changes in outdoor temperature, room temperature, radiator heat, and air volume. In warm weather the unit brings in

cool night air and circulates it during the day.

It can be installed in any standard window and in special type windows with an extra kit, according to the company. Therm-Aire can be adjusted to recirculate and refilter room air and serve as a supplementary heater. Featured also is an extra filter unit containing activated charcoal. Standard filter unit is permanent, washable, 2-in. thick aluminum.

Suggested use is in bedrooms, nurseries, offices, as well as hospitals, hotels, and laboratories where fresh, clean air is required.

area" because burner tips give complete combustion.

Basic kit includes a heat concentrator tip, a high heat or blow torch tip, a soldering iron tip which is equivalent to a 12-lb. commercial iron, hose, regulator, pressure gauge, and steel carrying box.



'Air Provers' Reduce Oil Flow After Air Failure

—KEY NO. E-124—

MILWAUKEE — A-P Controls Corp. has added two new "Air Prover" safety mechanisms to its line of oil controls. Air Provers provide safety fan control for pressurized burners, and may be used with A-P constant level oil control valves.

They are designed to provide a safe method of preventing excess oil flow in the event of air failure, going into action when air flow is interrupted due to electrical failure, mechanical fan problems, or a clogging of the fan.

Model 113A, which may be used manually or thermostatically, reduces oil flow to a safe rate when air failure occurs. It is completely mechanical and requires no electrical connections. It can, however, be supplied with a snap switch which will provide means for shutting off the fan.

Air pressure against a diaphragm actuates the control, thus moving a lever arm to allow full oil flow. Oil flow can be controlled manually or thermostatically.



'Fire Gun' Developed For Large Heating Jobs

—KEY NO. E-123—

DENVER—"Fire Gun," a portable hand-operated heating tool with a heat range of 4,000 to 117,000 B.t.u. per hour, has been developed for small or large heating applications beyond the capacity of conventional blow torches or soldering irons, according to the Fire Gun Sales Corp.

Trigger controlled Fire Gun is adaptable for many uses, such as soldering, tinning, brazing, preheating, thawing, plasticizing, and paint removal.

The 3,650° F. flame using propane as the fuel burns clean with no carbon deposit or "blackened



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J. F. KNOFF
VICE PRESIDENT IN CHARGE OF SALES

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Service & Supplies

Graff Retires After 35 Yrs. In Industry; Appreciation Dinner Marks 24 Yrs. at Ranco

COLUMBUS, Ohio—Thirty-five years of active business service were toasted recently when 20 executives gathered in the Deshler-Hilton hotel here to honor G. E. (Eddy) Graff following the announcement of his retirement from the sales management of Ranco, Inc., refrigeration and heating control manufacturer.



G. E. Graff

Effective Jan. 1, the 24-year Ranco veteran left the sales position he assumed in 1934, though he will maintain association with the firm on an advisory basis.

Toastmastered by A. C. Homeyer, Ranco's long-time New York representative, the appreciation dinner gave an impressive gathering of field representatives and management personnel a formal opportunity to praise Graff's business achievements and to pre-

sent him with a gold watch and set of matched luggage.

Board Chairman E. C. Raney flew up from Florida to attend. President A. M. Hoover; W. R. Opp, vice president; Howard Ailes, Order Dept. manager; Fred Greenawalt, chief engineer; Eldon Raney, Ranco secretary; and Bob Eddy, treasurer, were all present as guests of the field staff to pay tribute to the retiring executive.

Sales Dept. personnel present included Robert Raney, Martin Vidis, Ward Stanley, Carl Hauelsen, Margaret Brandfass, Mary Lou Robinson, and C. M. Spielman.

And Graff's own field men, who, with the Sales Dept. members, co-hosted the dinner, assembled from all parts of the country. Included were: A. C. Homeyer, New York; H. M. Goldberg, Chicago; F. G. Slagel, Los Angeles; C. E. Boren, Dallas; E. V. Dunbar, Atlanta; H. M. Laird, Philadelphia; J. D. Merkle, St. Louis; and J. S. Beechler, Detroit. C. E. Whippis, absent because of illness, sent a congratulatory telegram.

Wolverine Tube Opens Mill Depot In Miami

MIAMI, Fla.—A new mill depot has been opened to serve customers of Wolverine Tube, Div. of Calumet & Hecla, Inc., in this area. The depot will stock Wolverine seamless non-ferrous copper water tube, automotive tube, and refrigeration tube.

Establishment of this new facility will increase speed of shipment and service to customers in the southeastern district.

Wolverine expects to make many shipments within 24 hours after an order is received, it was reported.

Russell A. Johnson Named By Houdaille-Hershey Div.

N. CHICAGO, Ill.—Russell A. Johnson, who was recently made divisional sales manager for refrigeration components of Houdaille-Hershey Corp., will now headquarter at North Chicago where the Refrigeration Div. is located.

The announcement came from Eric Boehm, recently appointed manager of this division.

Johnson will assist in the centralization of all refrigeration sales and engineering activities in connection with evaporators, condensers, cabinet cooling plates, and freezer shelves being manufactured at the North Chicago plant.



R. A. Johnson

Victor Fabian Elected To Head Detroit Contractors

DETROIT—The Refrigeration & Air Conditioning Contractors Association of Detroit has elected Victor Fabian of Square Deal Refrigeration as its president for 1955. He succeeds Joseph W. Heffernan.

Other officers elected are Jack Winslow of Effective Temperature Control Co., vice president, and William J. Schemers of Schemers Refrigeration, secretary-treasurer.

New directors include B. C. Reider of York-Detroit Corp., W. T. Heaney of the W. T. Heaney Co., George Barson of Barson Refrigeration Co., Carl Hassigan of Carl's Refrigeration Sales & Service, and William Davis of Davis Air Conditioning Co.

Sweden Appoints Sterling Authorized Service Firm

SEATTLE—Another link has been added to the nationwide chain of service organizations authorized to handle servicing of Sweden equipment, with the appointment of John W. Sterling Co., Everett, Wash.

The appointment, made by the Customer Service Dept. of the Sweden Freezer Mfg. Co., manufacturer of soft-serve freezers, milk shake machines, and soft-serve soda fountains, is in keeping with company policy to provide more than one source of authorized service in every trading area.

Sterling, president of the Everett firm, has been in the refrigeration field 20 years and founded his company in 1940. A. M. Vanderstaay, a 30-year veteran in the servicing field, is service manager. Installations of Sweden automatic fountain freezers and "Frigidmixers" in the Everett area will be serviced by the Sterling company.

Alter Opens Branch On Chicago's W. Side

CHICAGO—The Harry Alter Co., refrigeration parts wholesaler, announces the opening of a new branch on the west side of Chicago at 7330 W. Madison St. in suburban Forest Park, Ill.

Joe Holub, a veteran of 20 years' experience in the refrigeration parts business, will be the manager.

A complete line of refrigeration, air conditioning, and electric motor parts and supplies will be stocked at the new branch to give better and faster service to west and western suburban customers, the company said.



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"Infiltration of moisture into a 'Freon' system can become extremely troublesome," Cramer explained. (He had discussed several ways in which this might occur.) "Another everpresent possibility of moisture entering the system is during sub-atmospheric crankcase operation where minute refrigerant leaks or crankshaft seal leakage may draw air with its moisture content into the system. Large quantities of moisture can be drawn into the system in this manner.

"The presence of air in a refrigerant system can also result in corrosive combinations. The addition of oxygen to the lubricating oil in the presence of high temperature can result in the chemical formation of water.

What Effect Does Moisture Have?

"There is some disagreement among specialists as to the exact effect of moisture on chemical reactions within a refrigerant system. There is almost unanimous agreement, however, that moisture does play a part in the effect known as copper plating of compressor parts. It is also universally agreed that high operating

temperatures (discharge gas temperatures) also play an important part in the breakdown of lubricating oil and subsequent copper plating conditions," he said.

"Without going into the supposed chemical reactions, it is known that a breakdown of lubricating oil as a result of heat and moisture, and possibly lubricating oil impurities will increase the acidity of the lubricating oil. When this lubricating oil circulates through the copper coils of a refrigerant circuit, it dissolves a certain amount of copper and upon return to the crankcase, the elevated operating temperature of the crankshaft will cause the copper to plate on the rubbing surfaces.

"Due to the fact that the present-day compressors are constructed with a minimum of bearing clearance, it does not take a very thick coating of copper to completely replace the necessary operating clearance. It is believed that once copper plating starts and the bearing running clearance is diminished, the bearing will start to operate at an elevated temperature. It is also believed that this elevated temperature further accelerates the plating of copper which can bring about a

bearing failure in a relatively short time.

"Frequently copper plating will be found on the cylinder walls and piston surfaces and may result in freezing of pistons to cylinders.

"It is believed that both moisture and high gas discharge temperatures play a very large part in the formation of sludges within a compressor crankcase. The most destructive result of sludge is the restriction of the oil suction strainer with subsequent loss of lubricating oil pressure and bearing destruction.

Discoloration of Oil Occurs with Moisture

"In a majority of cases where moisture has entered into a chemical reaction with a lubricating oil, a discoloration of the lubricating oil results. Generally, any condition resulting in a discoloration of lubricating oil should be investigated and eliminated. The least precaution that should be taken is to change the lubricating oil when it becomes discolored.

"Another well-known result of moisture contamination to the 'Freon-12' system is freezing in the expansion valve. Some opera-

"The current trend in refrigeration compressors demands that the machine be light in weight, occupy a minimum amount of space, be low in first cost, and give satisfactory service life. In order to meet these demands, compressor manufacturers have been forced into compressor designs that embody higher speeds."

This was part of the discussion by Clayton B. Cramer, application engineer for Carrier Corp., when he spoke at the ARI Educational Conference and the 17th annual convention of the Refrigeration Service Engineers Society recently in Minneapolis. Cramer examined various causes that can shorten the life of a compressor.

The first part of his talk was published in the Jan. 3 issue of the NEWS. Published on these pages is the concluding portion.

tors find it expedient in the case of expansion valve freezups to add an alcoholic preparation marketed under various trade names. Most compressor manufacturers will recommend the removal of the moisture rather than an additive to combat the physical disadvantage of the moisture.

"A discussion of moisture would not be complete without giving some picture of the amount of moisture that may be involved in the average 'Freon-12' system," Cramer continued.

10 Parts per Million Not Uncommon

"Reputable refrigerant manufacturers make every effort to supply refrigerants with minimum moisture. 'Freon-12,' for example, with a moisture content of 10 parts per million is not uncommon. Perhaps to a good many it may be difficult to visualize '10 parts per million.' Academically it means 10 oz. in a million ounces or 10 lbs. in a million pounds or 10 grams in a million grams. Assuming that the weight of water and refrigerant is the same, 10 parts per million can be described as being equivalent in size to an average size pea as compared to a regulation size basketball.

"Thus though we are talking about very small quantities of moisture, they are nevertheless perceptible. Even though it is quite difficult to keep the moisture content low, the effort expended will pay big dividends in extending the life of the compressor.

What Is Maximum Tolerance For Moisture In System?

"The maximum amount of water that can be tolerated in a system to assure freedom from corrosion is a very much discussed subject. There is some disagreement among specialists with respect to this figure. Recent literature on the subject however gives figures from 15 parts per million to 300 parts per million.

"If a 'Freon-12' system has 300 parts of moisture per million, a large portion of this moisture will appear as free water. A moisture content of 30 parts per million, however, will be completely absorbed by the refrigerant (at evaporator temperatures above -20° F.) and will not freeze out at the expansion valve. (Greater quantities of moisture will freeze out.)

30 Parts per Million Can Cause Copper Plating

"Absence of expansion valve freezing does not always assure a dry system, however. Operators have reported extensive copper plating (without expansion valve freezing) at evaporator temperatures of -20° F. This observation suggests that copper plating can result from moisture concentrations of less than 30 parts per million.

"Association with a great number of refrigeration operators has divulged an alarming attitude with respect to infiltration of air into refrigerant systems. Many maintained that infiltration of air into refrigerant systems is not serious since it can be purged from the system with comparative ease.

"This attitude should be corrected because infiltration of air into the refrigerant system usually

carries large quantities of moisture with it. Unfortunately when the air is purged from the system the moisture remains.

"Repeated infiltration of air and purging will gradually increase the moisture content in the system. For example, in an average 3-ton system in which a refrigerant dryer is employed, the infiltration of 1 cu. ft. of average summer air will deposit sufficient moisture in the refrigerant system to saturate the 3-ton dryer at a moisture concentration in excess of the corrosion limit," he warned.

"If a compressor is operating with a sub-atmospheric crankcase pressure for prolonged periods, the system should be checked frequently for the possibility of air infiltration. An elevated head pressure is the best known clue.

Be Sure New System Is Dry

"The first step in assuring a dry refrigerant system is to make absolutely sure that the new system has been properly dehydrated. This is done by evacuating the entire system with a good quality vacuum pump which can obtain a vacuum of at least 29.75 in. of mercury (based on a 30-in. barometer).

"If there is positive assurance that there is no liquid water in the (Concluded on next page)

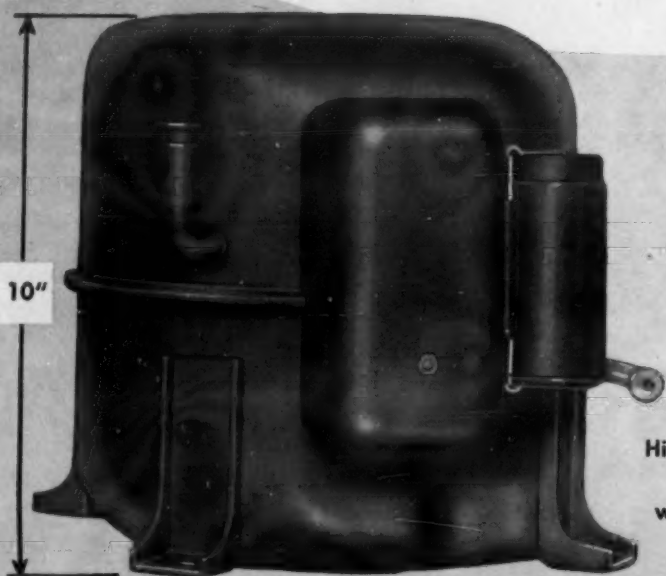
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Why Do Compressors Fail?--

(Concluded from preceding page) system, this high vacuum need not be maintained over a prolonged period of time. However, it is considered good practice in such cases to pull the system down to a very high vacuum and allow the system to rest overnight with the vacuum pump turned off and the pump isolated by means of airtight valves.

"The type of instrument used for measuring a vacuum is of considerable importance. The ordinary Borden tube gauge (vacuum) is not sufficiently accurate at the high vacuums for this purpose. Bear in mind that the purpose of evacuating the system is to reduce the pressure low enough so that any small quantities of moisture will boil off at the existing ambient temperature. Reference to the steam tables or to Table 1 will give the boiling temperatures of water at various low pressures.

Table 1—Boiling Temperatures of Water at Various Pressures

Boiling Temp. °F.	Absolute Pressure In. of Mercury	Vacuum In. of Mercury (Based on 30 In. Barometer)
70	0.739	29.261
60	0.522	29.478
55	0.436	29.564
50	0.363	29.637
45	0.300	29.700
40	0.248	29.752
35	0.204	29.796
32	0.181	29.819

"Note from Table 1 that merely pulling a vacuum of slightly over 29.261 in. provides a boiling temperature of 70°. If for example, the ambient temperature was 65° the water in the system would not boil. However, if a vacuum of 29.752 in. were obtained (0.248 in. absolute) the boiling temperature of the water in the system would then be 40° and with an ambient temperature of 65°, a temperature difference of 25° would be available for the evaporation of the water.

Insulating Glass, Thermometer, Distilled Water Used

"Any vacuum instrument that would correctly indicate pressures in this low pressure area is satisfactory. One indicator that is used to good advantage in the refrigeration industry consists of an insulated glass enclosure containing a thermometer and a quantity of distilled water. A pressure-tight fitting is sealed into the top of the glass enclosure for attachment to the system being evacuated," explained Cramer.

"This type of indicator makes it unnecessary to consider the vacuum reading in inches of mercury since

the boiling point of water in the system can be read directly on the thermometer. Since this type of gauge is very sensitive to contamination, it is important that only distilled water be used and that the gauge be protected against the possibility of drawing oil or other contaminants from the system or from the vacuum pump during its use.

"The use of a refrigeration compressor is entirely unsatisfactory for the purpose of dehydrating a system by the high vacuum method.

"In new installations where liquid water may be present in the system, the dehydration must be carried out over a much longer period of time. In some instances it may be necessary to keep the vacuum pump in operation for a period of 24 to 30 hours.

"The progress of the dehydration procedure can be checked periodically by stopping the vacuum pump, valving off the suction line, and observing the rise in pressure within the evacuated system. If the pressure in the evacuated system rises appreciably within one-half hour, the presence of liquid water in the system must be expected.

1/10 In. of Mercury Indicates A Dry System

"If, however, the pressure in the evacuated system does not rise more than 1/10 of an inch of mercury during an overnight shutdown, the system can be declared reasonably free of moisture.

"The next important step in obtaining a moisture free system is to charge the system with refrigerant that is known to be dry, preferably that which has been received directly from the manufacturer. The use of refrigerant that has been withdrawn from a previous system can introduce large quantities of water even though the refrigerant may be charged into the system through a liquid dryer.

40 Hours Needed for Maximum Drying

"There is every reason to believe that wet liquid refrigerant passing through a dryer only once will lose a small percentage of the moisture which may be in the refrigerant. Careful laboratory tests on refrigerant dryers in the liquid line of a refrigerant system indicate that the dryer will not absorb its maximum amount of moisture from the system in much less than 40 hours of operation.

"In other words, absorption of moisture by a refrigerant dryer is a much slower process than may be suspected. For a maximum of

safety charge the system with refrigerant directly from the manufacturer.

Oil Will Absorb Moisture

"Lubricating oil for the compressor crankcase should be charged into the compressor from sealed airtight containers. Lubricating oil left open to atmosphere can absorb large quantities of moisture," Cramer said.

"Finally, a new system should include a liquid dryer of sufficient capacity to remove any moisture that may have entered the system in spite of the previous procedures.

"The dryer should be left in the system for at least 40 operating hours, at which time it has become saturated and has removed all of the moisture it can remove. At the end of 40 hours a meticulous operator may want to know how much moisture is in the system.

"The dryer should be capped when removed, and sent to a laboratory equipped for such purposes, where an analysis of the dryer will reveal the quantity of moisture remaining in the system in parts per million. Some compressor manufacturers provide this service to its dealers for a nominal charge.

"Naturally a customer would prefer to have a compressor last as long as possible and will be satisfied with a reasonable figure based on experience with other rotating equipment. For example, a compressor operating at 1,750 r.p.m. for 10,000 hours has made as many revolutions as an automobile engine which has traveled a distance of 300,000 miles. There are very few individuals that would expect to run an automobile 300,000 miles before contemplating some type of engine overhaul.

"With complete adherence to all of the known factors contributing to maximum compressor life, compressors may be expected to operate longer than 10,000 hours before overhaul becomes necessary.

"A modern high-speed compressor design incorporates replaceability features that will enable the owner to replace every wearing part in the compressor at a small percentage of the original cost. Thus, to answer the often asked question 'How long will the compressor last?' one might answer, 'As long as replaceable parts are available.'

Continuous Operation Equals 8,600 Hours per Year

"If a compressor is required to operate continuously, it can accumulate about 8,600 hours in a single year, while for the average air conditioning application, from four to 10 years are required to accumulate 8,600 hours of operation.

"A desire for 10,000 hours of life, however, is not a satisfactory substitute for conscientious, periodic inspection, and maintenance. Occasional inspection of the internal parts of a compressor during periods of normal shutdown, will often prevent a serious failure at an inopportune time.

"On compressors which use a force-feed lubricating oil system and which are equipped with an external oil pressure regulator, the

condition of the bearings can be periodically checked without the necessity of removing the bearings.

"In any compressor equipped with a pressure regulator, it is the duty of this regulator to by-pass that oil which is not required for lubrication. Obviously as compressor bearings wear, the clearance between the bearings and the crankshaft becomes greater and the amount of oil required for the lubrication of the bearings becomes greater.

Oil Pump Is Positive Displacement Pump

"In most cases, the lubricating oil pump is a positive displacement pump, and pumps the same quantity of oil if the speed of the compressor is not changed.

"At least one compressor manufacturer has developed a calibrated needle valve which can be screwed into the opening provided for the oil pressure regulator. With the compressor in operation at normal operating temperature, the position of the needle valve can be used to indicate the quantity of oil passing through the needle valve at the design lubricating oil pressure.

"If during such a check, the needle valve is found to be open several turns, when establishing the design lubricating oil pressure, it can be assumed that the bearings are in good condition.

"However, if it is found that a needle valve has to be closed almost completely in order to maintain the design lubricating oil

pressure, the operator can immediately become suspicious of either the bearing condition, the condition of the oil pump suction strainer, or the condition of the pump itself," Cramer declared.

"The simplicity of making such a lubricating oil check should encourage investigation at least once a year. If each observation is recorded, the bearing condition can be studied periodically and a prediction can be made as to the expected life of the bearings. A sudden change in the observation would indicate an abnormality which, if investigated immediately, might easily prevent a serious breakdown at a time when full capacity is desired."

Kason Hardware Appoints California Representative

BROOKLYN — Kason Hardware Corp. here has announced the appointment of Kason Hardware Distributors-California as its California representative.

Kason Hardware Distributors-California, with its main office and warehouse at 2325 W. Washington Blvd., Los Angeles, under the management of Ben Graber, and its branch office at 2128 San Miguel Dr., Walnut Creek, Calif., under the management of Dick Tobin, will carry a complete stock of all Kason products.

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Firm Finds 24% of Service Calls Related to Water Problems

Refrigeration Contractors Advised To Consider Getting Into Water Treatment Business

PHILADELPHIA — Air conditioning and refrigeration contractors might do well to consider getting into the water treatment business themselves, believes one contractor.

Harvey W. Hottel, who operates a contracting firm under his own name in the Washington, D. C. area, is planning to do just that, he revealed when he spoke at the Water Conference held during the 50th annual meeting of the American Society of Refrigerating Engineers here.

"The refrigeration contractor does have serious problems relating to water treatment," Hottel told the conference.

"If he is to survive and hold on to the customer's goodwill, he must recognize the problems and ... arrive at some solution.

"Our great refrigeration industry would not exist today if it were not for the resourceful contractor, sales engineer, and the installation and service mechanics. The successful refrigeration contractor must be a 'Jack of all related trades' and generally master them all, the water problem included.

"If one sets out to solve a prob-

Editor's Note: A highlight of the annual meeting of the American Society of Refrigerating Engineers was the Water Conference. Several conference talks have appeared in earlier issues and a later issue will carry the discussion by E. H. Hurst, of National Aluminate Co. On this page Harvey W. Hottel, Washington, D. C. contractor, advises contractors to consider entering the water treatment field.

lem, one must first seek for ideas, then ponder over them, test them, and prove them! The engineer must use this simple formula:

Ideas, plus
Making them work, plus
Making others like them.

"These three things move the world, and usually bring about a successful solution.

"Our organization has not, as yet, completely solved the complex water problems in refrigerating systems, but we are approaching the third stage, trying to sell the idea, and do the job well enough so that customers will like it and buy it," Hottel said.

"I would like to inject here a brief description of our organization, which I believe is somewhat typical in the industry, so that this group, and the manufacturers and

suppliers may better understand the average contractor water problems as we try to solve them.

"Our organization may be classified as average. It is not large. It is now almost 10 years old. We have a total of 54 good people employed, including 16 refrigeration mechanics and four steamfitter mechanics. Our sales volume, including the sheet metal shop, is in excess of \$700,000 annually.

"We have five excellent application and design engineers who are in charge of designing and processing individual installations ranging from residential heating and air conditioning systems to large (-100° F.) testing laboratories, apartment and office building air conditioning systems, etc., up to 600 tons capacity.

"It should be evident that this

type of contracting is involved considerably with water-circulating and water-saving equipment," Hottel declared.

"Water problems cost the American industry as much as a half billion dollars per year. According to a report issued by the Universal Refining Products Co., New York City, the user of refrigeration and air conditioning equipment is certainly paying his share.

"It is amazing, and also uncomfortable to our thriving industry, that many manufacturers and contractors don't know, or don't care, whether or not the user will get two years service, or 10 to 15 years of satisfactory service, from the capital investment which he has in his equipment.

'No Such Thing as Uncontaminated Water'

"In our industry, there is no such thing as 'uncontaminated water,' and that the water-handling equipment will last just as long whether water treatment is used or not used. To prolong the life of equipment, water sampling and laboratory analyses are necessary to determine the frequency of testing, and the treatment required, in order to maintain pH neutrality and minimize corrosion, sludge, algae, fungi, and electro chemical reaction, etc.

"I have never known a refrigeration contractor who claims to know very much about the complex subject of water chemistry, and this may well be the reason why the servicing contractor concerns himself very little about the problem. This is one of the main problems," he emphasized.

"It seems that corporations and companies are just like the individuals who operate them. They do not learn a lesson well until they are confronted with serious consequences, and then they learn from the harsh master, Experience, which truly is the best teacher.

"Our organization should publicly thank the older industry boiler men for alerting our early interest and concern, to some extent, about the general subject of water treatment in heating boilers.

"We sold quite a few commercial boilers, and in each case we followed the manufacturers' printed instructions and verbal admonition, sometimes reluctantly, that a boiler will not work properly and have long life if water treatment is neglected.

"It is said that iron rust expands more than 25% of its original volume, and this we actually experienced on boiler and heating system failures. We accepted this practice in heating systems.

'Struggled Along with Trial and Error Experiments'

"But, for some unknown reason, we minimized the equal importance and necessity of treatment for evaporative condensers, towers, chillers, spray dehumidifiers, drinking water systems, coil and shell water-cooled condensers, etc.

"We struggled along by trial and error, with experimentation, using powders, patented 'cure-alls,' chlorine, jumbo pills, acid cleaners, etc. We also tried the miracle catalysis gadget, and as directed by the genius salesman, smoked cigarettes through it, poured Coca-Cola through it, and even connected copper wires across the gimmick for various proof tests.

"We were wasting our time and the customer's money. Our mechanics' reports continued to come in concerning stubborn jobs. One customer whom I visited had a wholesale frozen food storage plant where some fruit packaging was being done.

"Algae, slime, and sludge were shovelled out weekly from the evaporative condenser pan in large quantities.

"Other jobs presented serious corrosion and lime deposit problems. There is apparently no pattern of similar job conditions. They all seem to need individual

and continual analysis treatment. Water, like fire, when in contact with other elements is destructive and often times almost uncontrollable," he commented.

Water Problems Were Taken to the 'Doctor'

"Several years ago we came upon a good idea. As we would go to a doctor when the human machine is in difficulty, we called in a qualified water treatment specialist. The idea worked. We turned over all troublesome jobs to a local water treatment company who has to date solved this problem.

"In most cases it is necessary for us to educate and sell the water treatment cost to the owner. He usually accepts our recommendations, but occasionally complains about the cost charged by the water treatment company.

"The equipment manufacturer and supplier, together with the installing contractor and consulting engineer, should assume greater responsibilities in our industry concerning this knotty and complicated water treatment problem.

"The cost of water treatment is not readily accepted by the owners of the equipment. This is understandable for two basic reasons:

"First, the contractor and consulting engineer in the past have neglected to properly inform and insist on water treatment as a necessary function of the maintenance work. Second, it is our opinion that the water treatment specialist charges too much for his monthly services," Hottel said.

Training Own Servicemen To Handle Water Treatment

"If the water treatment company servicemen can be taught to follow laboratory instructions in treating water, it is our belief that we also can indoctrinate our service mechanics to perform the same function, along with their other inspection and service work.

"We are now negotiating with a water treatment laboratory and supplier for all engineering assistance, regular water analyses including reports, materials, feeders, chemicals, and personal supervision of treatment application of these materials. It is our desire to properly set up our service department to furnish this service to customers at a lower cost.

"Our service manager reviewed the nature of all service calls which our service department performed during the month of July, 1954. To our surprise, 24% of these calls related to minor and major equipment failures or malfunctions due to water problems.

"Since we regularly assume all the other maintenance work and scheduled service on our jobs, it seems logical that we should retain this business for ourselves, and also eventually develop a nominal profit from the related service and life extension program of our installations."

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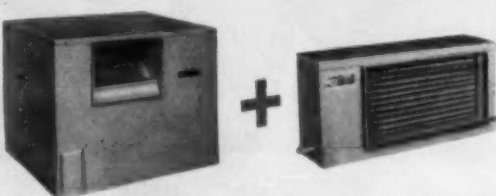
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Refrigeration Problems and their solution

by Paul Reed

For Service and Installation Engineers



Paul Reed

Cleaning Air (3)

In those industrial installations in which the air is heavily contaminated by lint, dust, chaff, or other relatively large particles from the material being processed, the ordinary cell-type air filter is rarely feasible. On some of these installations, the inlet side of the filters might load up within an hour or so, to such an extent that the reduction in the air volume passing through the filter would affect the capacity of the system. The cost of material and labor required in changing or cleaning the ordinary cell-type air filter would be too expensive under these extreme conditions.

ROLL TYPE SPECIAL FILTERS

There are several types of special filters that can be used on such installations. One is a large frame over which is spread a sheet of very porous material similar to that used in the ordinary cell-type filters, and the air passes directly through this porous or fibrous material.

The filter material is fed from a large roll at the top of the frame, and after being loaded, is rolled on to a roller below the frame. After the clean, top roll of filter material is used up, it is replaced with a new, clean roll, and the dirty, full roll at the bottom is removed and disposed of.

The filter material may be advanced by hand, but more commonly, the rolls are operated by an electric motor. For automatic operation, the rolls are either operated slowly, but continuously, or a timer may control the motor so as to advance the rolls periodically just enough to present a whole new sheet of material. The setting of the timer may be varied in accordance with the amount of lint, dust, etc., in the air and how fast the sheet of filter material loads up.

SCREEN WIPED AUTOMATICALLY

Another type, widely used in cotton mills, employs a fine screen instead of a filtering material. This soon loads up, but is scraped clean by means of a comb-like wiper the entire width of the screen, that travels from the top of the screen to the bottom, carrying the lint with it and depositing it in a container at the bottom. This container is cleaned out daily or oftener as required.

The comb-like scraper is electric motor operated and its frequency of wiping is controlled by a timer, set in accordance with the frequency with which the screen becomes loaded.

This type is suitable for lint or other contaminants of large size. Cell-type filters may be used with, but after the screen, if required.

CONTINUOUS CURTAIN TYPE

Still another method uses a series of porous plates in the air stream, the plates overlapping one another to form a continuous curtain. The plates may be dry, but are more often coated with a

viscous, special oil. The plates are mounted on an endless chain driven by sprockets at the top and bottom of the apparatus.

The chain is driven by an electric motor, so that the dirty, clogged plates are passed downward and through a bath of the viscous oil. There the lint and dirt are removed by the oil. When the plates emerge to pass upward, they are clean and coated with the viscous oil. The tank of oil is, of course, cleaned and new oil added or replaced occasionally.

The rate at which the chain is driven and consequently the length of time between the cleaning and re-oiling of the plates is governed by the speed ratio of the drive. Intermittent operation may be obtained and controlled by a timer in the motor circuit, set in accordance with the air-cleaning requirements.

AIR WASHERS

The oldest, and still one of the best means of cleaning air is the air washer. Because of first cost, the air washer is not adaptable to small installations, but it can be justified on the larger installations; and on such installations, is frequently employed.

There are two main types of air washers: the direct spray and the wetted surface types. There are many variations of each of these two types, and in fact the two may be combined on one installation.

In the spray type, the air is passed through one or more banks of sprays. The foreign matter in the air is literally washed out of the air by the droplets of water in the spray, absorbing the foreign matter and carrying it down into the sump. There the foreign particles are filtered out, so that the water can be pumped back and re-circulated to the sprays.

In the wetted-surface type, the air is passed through a bank of parallel plates over which water is flowed. The plates are arranged so that the air is deflected five or six times, in somewhat the same manner as the dry or some types of viscous filters.

Each time the air strikes the wet plates, some of the foreign matter is absorbed into the water, and is carried downward to the sump where the water is filtered and purified for re-use.

In a combination of the two types, the air passes through the sprays where it is partially cleaned. Then it strikes the plates which are wetted by the sprays, and is further cleaned by impingement of the particles on the wet plates.

ELIMINATORS USED WITH AIR WASHERS

Air washers usually have a rather high pressure drop of from about one-half inch to over an inch of water, depending upon the size of the water particles of the sprays, the depth of the spray, the number of spray banks in series, and the design of the wetted plates and eliminators.

Consequently, the air velocity through the air washer is relatively high, and as a further consequence,

the high velocity air tends to carry droplets of water out into the ducts beyond the washer. To prevent this, eliminators are placed downstream from the washers. These are similar to the eliminators used in evaporative condensers, and consist of a bank of parallel zigzag plates, usually mounted vertically. The droplets of water impinge on the eliminator plates as the air is deflected, and the droplets remain on the plates, and eventually run down into a sump.

Eliminators can be quite effective in removing free water, that is, droplets carried along by the air. Eliminators cannot, however, remove water vapor in the air; so on air-cooling systems, the water should be colder than the air, in order to prevent the air washer from acting as a humidifier and adding moisture to the air. On heating installations, where the addition of moisture to the air is frequently desirable, the water in the air washer may even be warmer than the air.

Air washing is frequently com-

bined with air cooling. The water is refrigerated in a shell-and-tube or other type of water cooler, and pumped to the air washer. Also, the air washer is expanded in size, and thus takes the place of the conventional evaporator coils. In such cases, there are usually at least 5 or 6 banks of sprays in series, about 2½ ft. apart.

Eliminators are provided on the downstream end and often on the upstream end also, to guard against spray getting back into the duct system, and to insure even distribution of air through the sprays.

Air washers are quite effective in removing foreign matter of various types and sizes, from the large particles of soot, sand, and chaff down to very fine particles in smoke, and even odors.

Air washers are rather expensive in first cost, especially for small installations, but not prohibitively so on the larger ones. Their cost of maintenance is relatively high, as filters, strainers, and spray nozzles require frequent cleaning. Cell-type air filters are sometimes used ahead of washers to reduce the maintenance required.

(To Be Continued)

Los Angeles Considers Licensing Installers Of Domestic Appliances

LOS ANGELES—A bill that would require all persons installing, servicing, or repairing domestic appliances to be licensed under the State Business and Professions code was scheduled for introduction before the state legislature, it has been reported.

James Bethanis, president of the California Appliance Profession Association, said the bill will be introduced by Assemblyman William Marsh.

In addition to the licensing provision, the bill contains a section calling for creation of the Domestic Appliance Contractor's licensing board.

Domestic appliance is defined as meaning "any device or apparatus designed for use in or about a home or residence where the installation, adjustment, maintenance, service, or repair thereof requires the performance of services for which a contractor's license would be required."

Graybar Plans To Erect New Building In Toledo

TOLEDO—Graybar Electric Co. will be the first occupant of the new Expressway Industrial Park here. Graybar has purchased property 200 by 335 ft. where it plans to erect an office and warehouse.

E. N. Cundiff, Graybar branch manager, said the new installation will replace the company's present facilities at 1700 Canton St. Graybar's new building will have about 40,000 sq. ft. of floor space.

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Acme DRY-EX® LIQUID CHILLERS
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... the original direct expansion type liquid chiller ... field proven in 17 years of continuous, trouble-free service ... deliver full capacity as rated.

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15 thru 100 tons for commercial and industrial applications

97% water savings ... all-metal, completely galvanized — no wood to rot, nothing to rust or corrode ... blowers on ALL models (not propeller fans) provide correct air volume, assure quiet operation indoors or outdoors — with or without ducts ... famous Acme wetted metal deck for fastest heat transfer, most compact size.

Acme CONDENSERS
THE STANDARD OF THE INDUSTRY

Because of their pace-setting quality and superior design, Acme condensers have been preferred by leading manufacturers of air conditioning and refrigeration equipment for years. You can depend on Acme condensers to deliver full capacity as rated and give the maximum of trouble-free service.

Acme CONDENSERS

SMALL TONNAGE CONDENSERS with integral fin tubing

SHELL AND TUBE TYPE
½ thru 30 tons

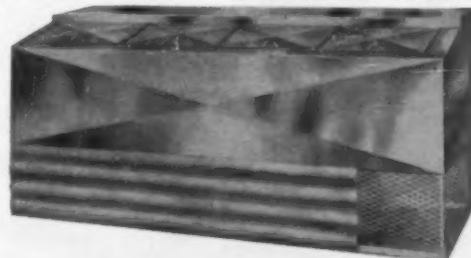
SHELL AND COIL TYPE
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LARGE TONNAGE CONDENSERS
FOR FREON OR AMMONIA
capacities up to 300 tons

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ACME INDUSTRIES, INC.
JACKSON, MICHIGAN, U. S. A.
Manufacturers of Quality Air Conditioning and Refrigeration Equipment since 1919

"A CASE OF COOL JUDGMENT"



**FLO-COLD
DRINKMASTER**
STAINLESS STEEL
CUBER—COOLER.

SOLD THRU DEALERS ONLY.

WRITE

United Refrigerator Engrs.
MENOMINEE, MICH.

AVAILABLE IN SIZES 4 TO 10 FT.

12th International Heating and Ventilating Exposition, Philadelphia, January 24 - 28

Armour Packs Three New Frozen Meat Items

CHICAGO—Armour & Co. is now marketing frozen buttered beef steaks, cheeseburgers, and beef grill steaks with barbecue sauce under the Armour Star label.

Addition of the three frozen products gives the company a total of 17 consumer-packaged fresh frosted meat items. The new items are being sold in packages small enough to fit into the ice cube compartment of a refrigerator.

The buttered beef steaks are packed four 2-oz. portions to the package. Three portions are in the 8-oz. cheeseburger package, and two portions in the 8-oz. beef grill steak carton.

Ice Cream Mfrs. Should Keep Close Check on How Dealers Handle Products

CHICAGO—C. C. Augustson, president of the Illinois Retail Grocers Association, indicated at a meeting of the Illinois Soft Frozen Dairy Products Association that he thought ice cream manufacturers should make certain that each store handling their products had a large enough storage cabinet.

He added that the manufacturer should also see to it that the cabinet was always well stocked. Augustson was one of four panel members who told what they would do if they were ice cream manufacturers.

Admiral Sued for Price Discrimination by 2 New York Appliance Firms

NEW YORK CITY—Admiral Corp., Admiral Corp. New York Distributing Divs., Inc., and Admiral Corp. of New Jersey are accused of price discrimination and restraint of trade in a suit filed in U. S. District Court.

Plaintiffs are Baim & Blank, Inc., former operator of a Brooklyn appliance store, and Apartment House Supply Co., which does business as Brick Church Appliance Co. The suit asks treble damages of \$111,000 and an injunction.

Defendants are charged with having granted preferential treatment to chain stores for at least six years. Such customers were listed as "associate distributors" or "factory accounts," plaintiffs claim.

FTC Hears Proposal on Trade Practice Rules for 'Home Freezer Plans'

WASHINGTON, D. C.—A proposal considered recently at a Federal Trade Commission hearing on trade practice rules for the frozen food industry would make it an unfair practice for any industry member to misrepresent the "permanency of service by the seller or savings in prices of products to purchasers of or subscribers to so-called 'home freezer plans.'"

The proposal defines "member of the industry" as any person, firm, or organization which either produces or markets frozen foods.

Johns Sales To Represent Jordon Commercial Div. In New York City Area

PHILADELPHIA—Johns Sales Associates, Newark, N. J. refrigeration engineering firm, has been appointed representative in New York City for the Commercial Div. of Jordon Refrigerator Co., John E. Mack, sales manager, commercial division, announced.

The new territory is in addition to north Jersey and the entire state of New York. Tom and Harold Binder, father and son, are the principals in Johns Sales Associates.

Jordon-New York, Inc., will continue to handle sales for Jordon's domestic lines of upright home freezers, combination refrigerator-freezers, and room air conditioners.

C. H. Hawks Appointed A-B Pittsburgh District Mgr.

MILWAUKEE—Charles H. Hawks, formerly in charge of the branch of the Detroit office of Allen-Bradley Co. here, has been appointed district manager of the Pittsburgh office.

Hawks succeeds Harry Thornberry, who will open a new Allen-Bradley sales engineering office in Bridgeport, Conn., under the jurisdiction of the New York office.

T. C. Herbes, formerly sales engineer working out of the Detroit office of Allen-Bradley, has been appointed as manager of the branch office in Flint.

Calvert To Represent Climate Supply In North, East Texas

DALLAS—Climate Supply Co. here, air conditioning and refrigeration parts, supplies, and equipment wholesaler, has announced the appointment of Claude Calvert as its representative in north and east Texas.

George Sexton, who formerly represented Climate Supply in that territory, will now cover Dallas.

N. C. Trade Group Seeks Industry Licensing Law, Examining Board Set Up

WINSTON-SALEM, N. C.—Passage of a licensing law pertaining to the refrigeration and air conditioning industry is one of the goals of the newly-formed Refrigeration Trade Association of North Carolina.

The group planned to seek such a law before the 1955 North Carolina General Assembly. George Buchanan of Jacksonville, N. C., is president of the state association.

Under the group's proposed law, an examining board would be established to test all persons who

desire to enter the industry to make certain they meet minimum requirements. The proposal would allow those now in the industry to continue their work if they meet certain requirements.

DISA Plans Meeting In Chicago March 3-4

WASHINGTON, D. C.—The 36th annual meeting of Dairy Industries Supply Association will be held March 3-4 at the Edgewater Beach hotel in Chicago.

Featured at the meeting will be two addresses by prominent national figures, a look at the international dairy industrial development situation, and the election of six directors to DISA's 18-man board.

FOR SALE

Slightly used—LECTRODRYER

Model BWC — Size 250 — Serial 7911
Desiccant: Activated Alumina

Manufactured by Pittsburgh Lectrodryer Corp. Used less than 18 months—condition excellent.

The Price Is Right.

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POSITIONS WANTED

DIRECT MAIL specialist. Available on consulting basis to manufacturer interested in large-scale promotions at consumer level. Successful sales promotional background in direct mail. Has received national recognition with "Best of Industry" award winning campaigns in air conditioning and heating fields. Write, DALTON FOX, 8864 Marseilles Ave., Detroit, Mich.

THOROUGHLY EXPERIENCED, over 20 years' servicing, installing, commercial, industrial, air-conditioning, ice making equipment also including ammonia and heating experience. Mixed with some sales experience as well as being service manager. Desires position with any reputable firm selling and servicing any nationally known product as service man or service manager. Will only accept, at least, union wages. Any locality acceptable. BOX A5130, Air Conditioning & Refrigeration News.

CHIEF ENGINEER having 20 years' experience as project engineer, chief engineer, sales engineer, and consulting engineer wishes to relocate. Offers background of original design in compressors, air cooled residential and store type air conditioners, window and console air conditioners, dehumidifiers, fur storage vaults, and allied products. Is acquainted with principal component sources and their products. Has long experience in coordinating the designing and engineering of new products with purchasing, production, and sales. BOX A5131, Air Conditioning & Refrigeration News.

SALES EXECUTIVE—Wholesale and retail—Available January 10th. Experienced in residential air conditioning and appliances. Can manage, organize and conduct promotional or training programs. Age 46—25 years' experience—excellent health—married. Desire connection with organization appreciating a volume of business and satisfied customers. BOX A5135, Air Conditioning & Refrigeration News.

POSITIONS AVAILABLE

ATTRACTIVE OPENING with Detroit jobber. Prefer younger man 25 to 40. Must have counter experience. Position offers liberal rewards with a real opportunity to learn and grow. Your opportunity to join a growing organization. LEE EQUIPMENT CO., 4721 Joy Rd., Detroit 4, Mich.

WANTED—EXPERIENCED serviceman in refrigeration and air conditioning. Not subject to government service. Good opportunity for advancement. Distributors for Hussmann and Frigidaire equipment. Apply direct to NORTHLAND REFRIGERATION, INCORPORATED, 118 South Washington Street, Green Bay, Wisconsin.

WANTED—MANUFACTURERS' representatives now contacting commercial refrigeration dealers in the following territories: Chicago, Atlanta, Detroit & Florida. Must be able to sell quality equipment: fast-growing line of special com-

mercial refrigeration items of interest to established refrigeration dealers. Replies confidential. Write: Paul R. Stewart, C. SCHMIDT COMPANY, 1712 John Street, Cincinnati 14, Ohio.

FIELD ENGINEER: Technical graduate, 25 to 30 years of age with experience in refrigeration and air conditioning, to call on manufacturers, wholesalers, and contractors after indoctrination and factory training program. Salary plus liberal bonus arrangement. Please give details of past and present employment and education in first letter. Your application will be kept confidential. Write BOX A5126, Air Conditioning & Refrigeration News.

A REGIONAL supervisor will be added to the staff of a refrigerator display case manufacturer early enough for the individual chosen to benefit from the peak business which will be available in 1955. We are looking for a man who can build on the base of present distribution, adding new distributors, helping them to train salesmen, etc. We'll gladly lay all our cards on the table without any fanfare in a confidential, personal interview which will enable you to compare what you make now with what you can earn with us. If we weren't sure you could do better with us, we wouldn't be running this advertisement. Give us a brief history of what you have done in commercial refrigeration or related fields, tell us about your present activities, etc. BOX A5132, Air Conditioning & Refrigeration News.

COMMERCIAL REFRIGERATION and air conditioning firm in northern N. J., established 21 years, wants experienced, energetic man to supervise and sell nationally known commercial refrigeration and air conditioning equipment. Opportunity for well paying permanent future with partial equity. Good salary and override. Sales \$350,000 annually. Owner anxious to retire. Write full particulars BOX A5133, Air Conditioning & Refrigeration News.

WANTED: SALES engineers for room coolers, package goods, and small applied unit department. Sales manager's position open for man of proven ability. Located north side of Chicago. Please send complete resume of education, experience and income requirements to BOX A5134, Air Conditioning & Refrigeration News.

EQUIPMENT WANTED

USED EQUIPMENT wanted: Interested in buying shop equipment such as steam jenny; high vacuum pump, electro air dryer; dew point meter; sand blaster; electronic Freon leak detector, etc. Please send details including prices. BOX A5136, Air Conditioning & Refrigeration News.

EQUIPMENT FOR SALE

FOR SALE cheap—44 brand new serpentine freezer liners, 18 x 18 x 34 1/2—6 cubic feet capacity. Original crates. Packed two in a crate. \$10.00 each. FOB Richmond, Indiana. GENNETT & SONS, INC., #1 Main Street, Richmond, Indiana.

ATTENTION SERVICEMEN: Save 25 to 50% on your refrigeration parts. Send for our catalog of values today. Here is only one of our money saving offers. 1 1/2" O.D. copper connections x 14 1/2" overall vibration eliminators, \$4.65 each. Lot of 10, \$4.00 each. WALTER W. STARR REFRIGERATION SUPPLIES, 2833 Lincoln Avenue, Chicago 13, Illinois.



TWO... are better than one!



FREEZ-KING Double Feature
DOUBLES YOUR SPEED... DOUBLES YOUR PROFITS!
MODEL 950
King size power. Two complete freezers in one stand. Each unit operates independently. Every portion perfect. Exclusive Freez-King features include patented automatic feed, seeing eye dial, automatic temperature control, patented back feed. Amazingly simple to operate.



A FREEZ-KING MODEL FOR EVERY PURPOSE

AMERICA'S MOST COMPLETE LINE OF CONTINUOUS SOFT ICE CREAM FREEZERS



NEW '55 MODEL FREEZ-KING SHAKE DISPENSER
Draws Shakes Direct from Freezer at the Remarkable Speed of 360 an Hour!

- Makes present methods old-fashioned
- Saves time... saves labor... increases profits
- Requires minimum floor space... only 20 x 25 inches
- Special Freez-King mix formula produces rich, thick, creamy shakes at astonishingly low cost
- Attractive in design... sturdy in construction... efficient in operation

WANTED: MASTER DISTRIBUTORS and DEALERS
Exclusive franchises available. Write for details.
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REFRIGERATION AND AIR CONDITIONING ENGINEER

A progressive, rapidly-expanding manufacturer of packaged air conditioning units, located in the South, desires the services of an individual experienced in the design and development of residential air conditioning equipment. The man we want is one presently employed and desirous of advancing with a young organization. Write, giving details of experience and qualifications in first letter.

BOX A5129, AIR CONDITIONING & REFRIGERATION NEWS

Commercial Refrigeration

Court Backs Contractor on Hiring Riggers--

(Concluded from Page 1, Col. 5)
Lipsey. The respondents denied all allegations of unfair labor practices.

The complaint in the case alleged in substance that respondents on or about last Aug. 3 attempted to cause Carrier and Turner to discriminate against employees by:

1. Requesting that certain employees engaged in rigging work at Baptist Memorial hospital in Jacksonville be discharged or removed from the job because they were not members of respondent union, and

2. In support of this request, induced and caused three supervisors and one employee of Carrier to cease work and engage in a concerted refusal to work on construction work being performed by Carrier under subcontracts in and around Jacksonville.

FINDINGS OF FACT

In his intermediate report and recommended order, Best said, in part, under his "Findings of Fact":

"A. Undisputed facts: Carrier Corp. entered into subcontracts with general contractors to furnish and install air conditioning equipment at Jacksonville, Fla., in the Baptist Memorial hospital building, the Prudential Life Insurance Co. building, and the General Foods Corp. building.

"To perform the installation work, Carrier dispatched from its Atlanta district office three centrifugal and absorption machine erector mechanics (Harry F. Miller, Vernon O'Neil Gresham, and Robert Slocum), who were members of United Association. . . .

"These men were authorized to hire and fire additional steamfitters from . . . Local Union No. 234 to assist in performance of the work, and are admittedly working foreman and supervisors within the meaning of the [Labor Management Relations] Act. . . .

"Carrier Corp. employed Turner Transfer, Inc., as an independent subcontractor, to transport essential heavy equipment from its factory in Syracuse, N. Y., to the Baptist Memorial hospital job site in Jacksonville . . . and to perform the necessary rigging work to place the refrigeration equipment in the building under construction at a final location for installation. . . .

"It was customary practice . . . for Carrier Corp. to employ independent contractors for the transportation and rigging of refrigeration equipment throughout the United States and Canada, but it had also entered into a national agreement with the United Association. . . ."

After quoting a provision of the agreement pertaining to erection of equipment and an exchange of letters between Carrier and the UA, Best stated: "It is therefore apparent that the contract of Carrier Corp. with Turner Transfer was no breach of the national agreement with the United Association, whether or not it was an otherwise legal contract."

Best next took up the "attempt to cause employers to discriminate against employees" in violation of the act.

"At approximately 8 a.m. on Tuesday, Aug. 3, 1954, knockdown centrifugal compressor equipment . . . arrived at the Baptist Memorial hospital site on motor vehicles of Turner Transfer.

"P. M. Campbell, rigging supervisor for Turner, hired four members of Ironworkers Local 597 to perform the manual labor of unloading and rigging the equipment, and had procured the use of a crane, etc., from Wood-Hopkins Co., a local rigging contractor.

STEAMFITTERS THREATENED WORK STOPPAGE

"Robert W. Davis, mechanical supervisor for the general contractor, informed Campbell that steamfitters engaged in other work on the project were threatening to strike unless members of Plumbers & Steamfitters Local Union No. 234 were hired to unload and rig the air conditioning equipment, and requested that he await the arrival of Business Agent C. L. Lipsey.

"Harry F. Miller was present, as representative of Carrier, and also requested Campbell to delay unloading until he could settle the dispute.

"At about 9 a.m. Lipsey arrived at the site, and in the presence of Miller and Davis and others, demanded that Campbell hire members of Local Union No. 234 to perform the unloading and rigging work. Campbell declined to do so, but Lipsey assured Davis that his steamfitters on other work would

not strike. Campbell proceeded with his work, and completed the rigging about noon on Aug. 4.

"In the meantime Miller walked off the Baptist Memorial hospital project, Vernon O. Gresham off the Prudential Life Insurance Co. project, and Robert Slocum off the General Foods project.

"All refused to work for Carrier on any jobs in the Jacksonville area until authorized to do so by Lipsey. Slocum also terminated the services of Steamfitter George A. Harris, who had been hired to work with him on the job at General Foods.

CARRIER WORK SUSPENDED

"All work of Carrier in the Jacksonville area was by reason thereof suspended until Aug. 16 when Lipsey withdrew his objections to the three supervisors returning to work."

Best's report then presented the testimony of H. N. Eggleston, district construction manager for Carrier, and of Miller, Gresham, Harris, and Lipsey. The latter denied that he requested Miller, Gresham, or Slocum to walk off their jobs.

In his concluding findings, Best said the sole issue in the case is whether respondents attempted to cause Carrier and Turner Transfer to discriminate against employees in violation of the act.

He said Carrier "definitely had some control" over Turner employees when transporting, unloading, and rigging its refrigeration equipment by reason of a paragraph in its "General Conditions of Specifications on All Contract Work."

"It is therefore apparent," Best said, "that any pressure or coercion against Carrier to force or require it to hire members of Local Union No. 234 to perform unloading or rigging work was calculated to bring pressure or coercion against its subcontractor to do likewise."

STOPPAGES NOT DENIED

Best said it wasn't denied that Miller, Gresham, and Slocum, because of their affiliation with the UA and subject to the jurisdiction of its Local 234, engaged in a work stoppage on three separate work projects of Carrier and refused to proceed until authorized to do so by Lipsey.

He said Lipsey "was present in each instance encouraging or inducing, if not commanding, them to do so."

Best concluded that he was "constrained to find from a preponderance of the evidence . . . that respondents engaged in an unfair labor practice by attempting to cause Carrier Corp. and Turner Transfer to discriminate against employees. . . ."



"ANY DEALER WHO CAN SELL icemakers has a fighting chance to get the big prize—a trip around the world," Michael J. Kane (left), Carrier Ice-maker sales manager, tells Carrier Vice President John M. Bickel, as he outlines details of the sales contest. It will be unique in that results will be coordinated with Buying Power Indexes, so that small dealers will be "handicapped" into contention with larger outlets.

'Icemaker Sweepstakes' Give Small Dealer a Chance--

(Concluded from Page 1, Col. 5)
in the country can enter this big sweepstakes, regardless of whether he is currently handling Carrier equipment," Kane said. "Anyone wishing to get in on the race can call the Carrier distributor in his vicinity and ask that his name be officially registered. There is no entry fee either for the salesman or the dealer."

The four one-week vacation trips for two will be awarded the leading retail salesmen in the four Carrier regions at the end of the initial eight weeks. The eastern region winner can go to Bermuda, the southern region winner to Nassau, the western region winner to Las Vegas, and the midwest winner may vacation in Louisville and enjoy box seats at the Ken-

tucky Derby.

Credit for five icemaker sales during the initial race qualifies the contestant for the handicap race starting March 27 and running through April 11.

The established Buying Power Index published by *Sales Management Magazine* for each individual salesman's territory will be used in determining each man's handicap. Thus all qualifying entrants running for the round-the-world grand prize, regardless of the size of their market, will have an equal chance of winning.

New sales promotion tools, including a dealer package which firms can use to get started in this specialty selling business, will be unveiled at Carrier's January distributor meetings, Kane said.

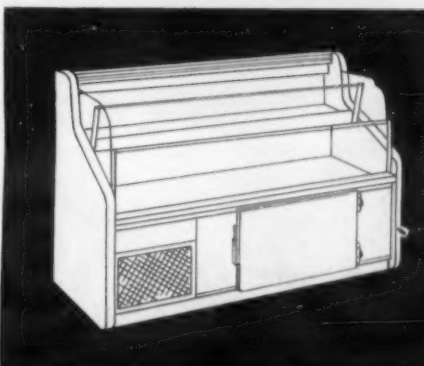
Are you losing sales?

complete your line . . . increase your profits . . .

with these

"special" models

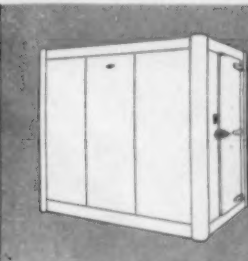
If your present line lacks these items . . . if you need equipment for a "better" job . . . or custom-built units, call on SCHMIDT. Excellent quality, reasonably priced. Let us send you complete literature and details.



6 ft. Self-Contained Case . . . for dairy products, meats and vegetables. 18 square feet of refrigerated display and 13 cubic feet of storage. Ready to plug in, excellent refrigeration. You can sell one of these a week!



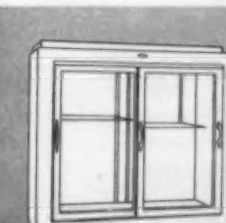
Self-Contained Sliding Door . . . excellent for baked goods, lunch rooms and small stores. Only 25" deep; stainless steel front. Large capacity.



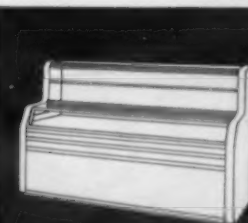
Walk-In Refrigerator . . . sectional construction, 7'-8" high with full head room. Exclusive "Filter-Flo" coil prevents mixed odors, eliminates cold blasts, maintains high humidity.



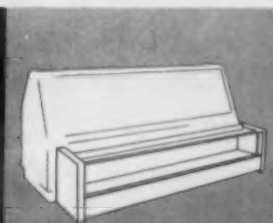
Sliding Door . . . increase the sale of and profit from bottled drinks. All around refrigerator for small store, variety of sizes. Extra large coils for fast cooling.



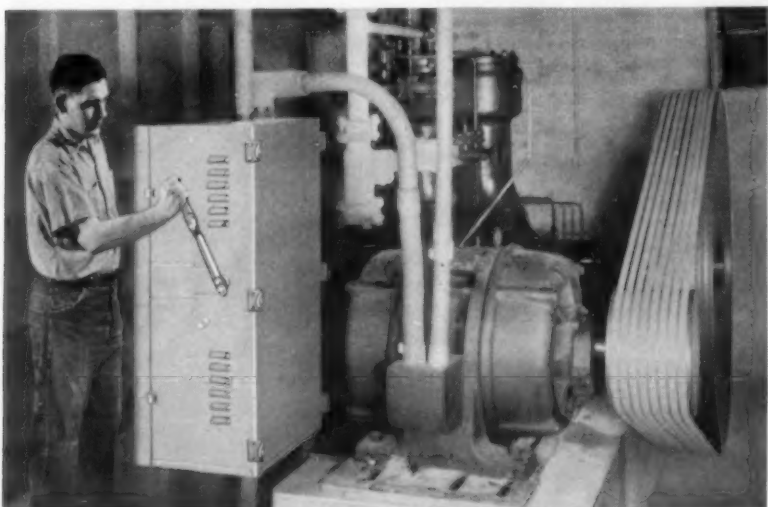
Floral Case . . . display and combination display-storage models, finished in colors or stainless steel. Exclusive refrigeration features protect flowers.



Frozen Food Cases . . . large capacity, beautiful design. Automatic defrost.



Self-Service Utility Case . . . good for the small store, will increase sales of meats, dairy products; can be double-decked for vegetables.

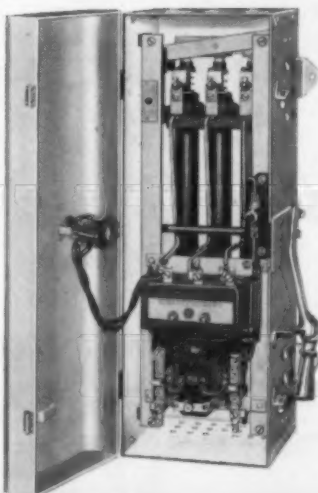


For a velvet smooth start of compressor motors, nothing can equal the stepless acceleration obtained with an Allen-Bradley Bulletin 640 manual resistance starter. By lifting the starting lever slowly, the flow of starting current is controlled with velvet smoothness, and the motor accelerates gradually to full speed.

When the motor reaches full speed, a magnetic switch automatically connects the motor to full voltage. Lamp flicker is avoided. Write for Bulletin 640, today.

Allen-Bradley Co.
1313 S. First St., Milwaukee 4, Wis.
In Canada—
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VELVET SMOOTH STARTER for Compressor Motors up to 200 hp, 220-440-550 v.



ALLEN-BRADLEY
QUALITY
MOTOR CONTROL



COMPLETE LINE of conventional self service cases and storage freezers. WRITE FOR DETAILS.

THE C. SCHMIDT COMPANY

1712 JOHN STREET CINCINNATI 14, OHIO



85th Anniversary



PHILCO room air conditioner.



PHILCO combination refrigerator-freezer.

Philco Lines for 1955 --

(Concluded from Page 1, Col. 2) heating or cooling level of room air conditioners at a pre-selected temperature by restricting the flow of the refrigerant through the system.

Philco also announced a new feature in its chest-type freezers: a convertible compartment that "does triple duty as a fast freeze, refrigerator, or frozen food storage compartment."

The refrigerator line includes two models of the two-way opening door unit first shown to the public last year. All models are completely redesigned with new interiors and exteriors, highlighted by a new double-depth "Dairy Bar" in the doors, reported Raymond A. Rich, vice president-appliance division, at Philco's annual winter distributor convention here.

Two of the ranges will have a built-in "Roastmeter" that records on the control panel when a roast or fowl is cooked to any degree of rareness to well done, according to the company.

The eight new room air conditioner models were described by Jack Cherry, manager of room air conditioner sales.

Cherry said the compact 3/4-hp. All-in-One Windowlette can be installed in eight basic ways in

double hung or casement style windows as well as in through-the-wall custom installations.

The new model can be used as a minimum space console, using wrought iron legs or a book stand fixture, he stated. It reportedly cools up to 510 sq. ft. Cabinet dimensions are 33 in. wide, 23 1/2 in. high, and 13 in. deep.

Philco also has a 1 1/2-hp. window model that, according to the company, "is adaptable for remote installations in homes such as attics and crawl spaces."

The pre-cool feature, called the "Comfortimer," and automatic temperature control of both heating and cooling will be found on 3/4 and 1-hp. models. Styling for 1955 models includes a new "Arctic" color and a new over-all "diamond pattern" styling of the grilles which are independently adjustable four ways.

Philco's Comfortimer provides automatic pre-cooling of a room at a pre-selected time. In addition, it can be set for an interval lapse of up to two days.

"The Comfortimer's skip-day feature makes it possible, when away from home or office over the weekend, to have the air conditioner automatically start and pre-cool the home or office at a

selected arrival time. The lapsed time interval may be either one or two days.

"The automatic temperature control holds either the heating or cooling level of the room air conditioner at a pre-selected temperature, by regulating the flow of refrigerant through the unit. And at all times, which cooling, it continues to dehumidify."

All Philco room air conditioners with heat pump systems will heat the same size room as they cool, it was stated. The system will heat a room even when outside temperatures are as low as freezing, according to Cherry.

In addition to the Windowlette and 1 1/2-hp. models, Philco's 1955 line includes three 3/4-hp. models, 84-M, 85-M, and 86-M; and three 1-hp. models, 104-M, 105-M, and 106-M.

The 3/4-hp. models will air condition up to 510 sq. ft., and the 1-hp. models up to 685 sq. ft., Philco said.

Models 86-M and 106-M have the same features (except for size), including a heat pump system that "heats as fast as it cools." Likewise, models 85-M and 105-M have similar features (one of them being the Comfortimer), and so do models 84-M and 104-M.

Other features of the air conditioners are fresh air and pump out dampers that operate together or separately; completely adjustable window mounting; and five adjustable grilles.

Philco's new refrigerator line

includes one 8-cu. ft. model, two 9.7-cu. ft., one 10.2-cu. ft., two 10.5-cu. ft., two 11.3-cu. ft., one 12.2-cu. ft., and two 12.6-cu. ft. models. Also in the line is leader model K-752.

"The important trend in refrigerators is to large capacity," Rich said. "In 1955 the smallest refrigerator we will make will be 8.1 cu. ft. and the emphasis will be in models from 10 to 12.6 cu. ft."

Philco's exclusive two-way opening door, which opens either to the right or to the left, whichever is more convenient at the moment, will be used on two models this year, the K-1159 as a 10.5-cu. ft. model, and the K-1259 as a 12.6-cu. ft. model.

The two-door model line with separate doors for the freezer and refrigerator compartments will also be available in two sizes. The K-1158 as a 10.2-cu. ft. model will be complemented by the K-1258 as a 12.2-cu. ft. model.

New bevel styling of the bottom of the freezer door "eliminates the awkward overhang of the top door, so noticeable when the refrigerator door is open."

Philco's Dairy Bar is now double-depth and extends the full length of the door for greater capacity and ease of use. The "Cheese Keeper" is now the full-width of the door.

Philco's 1955 chest-type home freezers will be available in 8, 13, and 18-cu. ft. models, with the 13 and 18-ft. models featuring the "Convertible" compartment that

can alternate for freezing or as a refrigerator compartment by merely pushing a button.

Operation of the Convertible model's fast freeze compartment as a refrigerator at 38° temperature reportedly does not affect the zero temperature of the storage section of the freezer.

"The Convertible's dual use compartment," Rich pointed out, "extends the usefulness of the freezer in the home without disturbing its basic job as a frozen food center."

"Beverages can be cooled in it, extra butter, eggs, and green stuffs can be stored there, offering additional storage area."

The control center for the Convertible is mounted inside the freezer where it is easily reached.

The upright freezers include two 14-cu. ft. models, and 19 and 25-ft. models.

'Freon' Drop Shipments --

(Concluded from Page 1, Col. 2) chasers for service work or replacement in existing equipment.

Elimination of drop shipments, the company said, should lead to more rapid handling by wholesalers of both regular and emergency requirements of servicemen, contractors, dealers, and ultimate users.

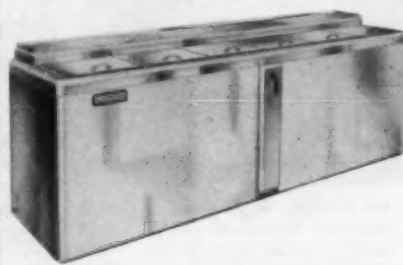
Shipments to wholesalers will be made only to their regular places of business. Under a plan in effect since Feb. 1, 1954, drop shipments had been permitted on orders in excess of 600 lbs. net to a single destination.

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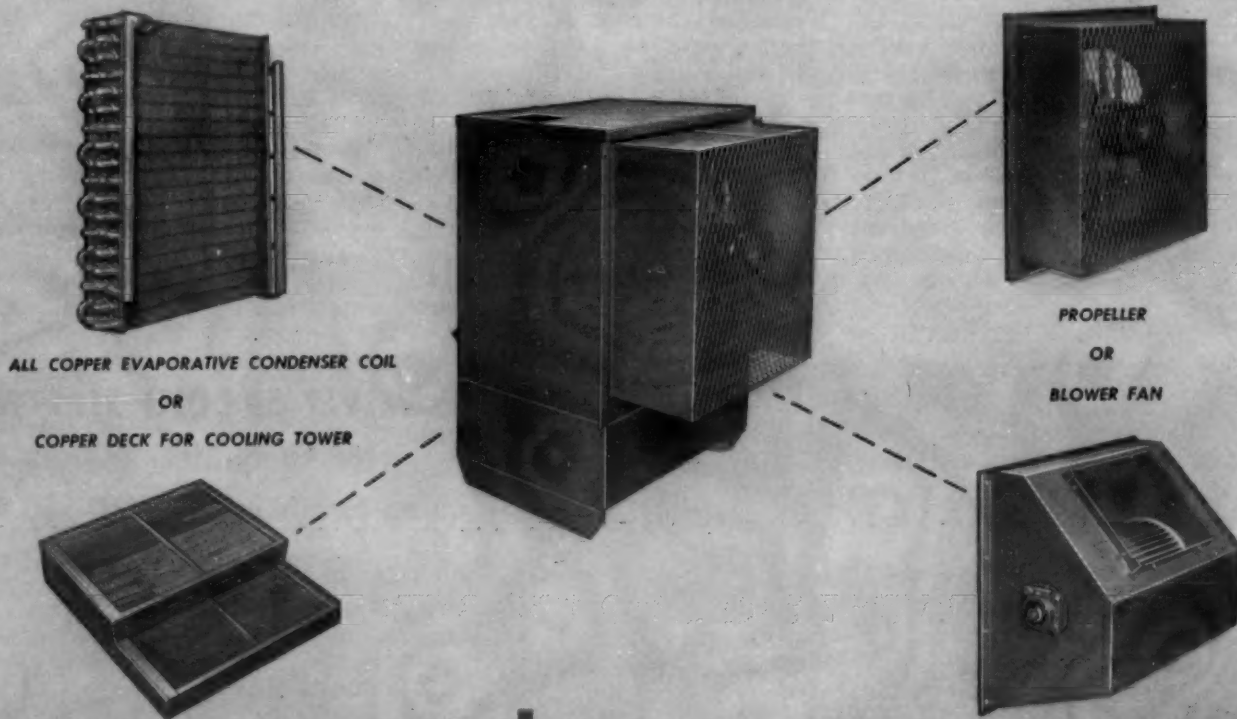
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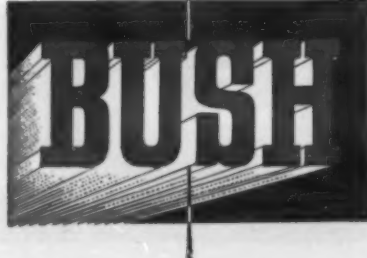
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